An Address
ON
ARTERIO-SCLEROSIS AND THE KIDNEYS.

DELIVERED BEFORE THE KENSINGTON DIVISION OF THE METROPOLITAN COUNTIES BRANCH.

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INTRODUCTION.

GENTLEMEN,—The problem which I have chosen to discuss before you to-day is one of the most alluring and the most baffling in pathology—alluring, perhaps, by its very subtlety. Whether we think to approach it by the way of clinical observation or of the exacter methods of clinical research—the methods of chemistry and physics, or, again, by way of experiments in animals, or of empirical tests in man, we find ourselves on every way disconcerted. These ways are strewed with conjectures and speculations withering untimely even before the early spring of a working hypothesis. At the bedside the physician, who indeed has made more of the task than his comrades, justly believing himself to have delineated certain broad lines of difference between kinds of kidney disease, when he has followed his cases into the deadhouse, is disconcerted to hear that his "tubular" cases, being also "interstitial," and his interstitial cases being likewise tubular, the pathologist will have none of his divisions. Moreover, he is informed that, although a certain group of these diseases may be obviously and extensively correlated with cardio arterial disease, yet that few cases of chronic Bright's disease fail to reveal to the pathologist—at least within the relics of the kidney—some measure of arterial disease. The physicist and the chemist, studying the freezing points and the electro-conductivity of the urine or of the blood in Bright's disease, told us but yesterday that evidence of retained katabolic products of a non-conductive quality—and therefore of organic nature—was secured; to-day we are told, on authority as good, that had these investigators thought of applying the same tests to the normal man they would have received much the same response; and that in either case the variables are too many to issue in consistent results.

Again, but yesterday we were told that in renal disease the urine indicated a lack of nitrogenous waste—waste remaining in the body to poison it; to-day we hear that, other things, especially food intake, being equal, the total urine in Bright's disease, save *in extremis*, is often as well-loaded as in health. Once more, we were to have found some standard of renal efficiency in the rates of discharge of conspicuous bodies—such as methylene blue or potassium iodide—but now these tests likewise are said to have failed in constancy; the kidney, it seems, may work hard on one set of bodies and either neglect others or, more probably, refuse to take notice of them until properly presented to it. Finally, the physiologists were surmising that some of the occult influences of renal function might be due to an internal secretion, perhaps of a pressor quality; and there were rumours of a hypothetical "renin"; later investigators turn us back with the announcement that if renal extract, like almost any other organic extract, may raise blood pressure momentarily, yet the main effect is depressor or neutral. Well may Professor Adami say in his new *Principles of Pathology*, that arterio-renal problems are among the most complicated and obscure in the whole of pathology.

But from these diversions we must turn to the part of the subject which is to be the matter of my discourse to-day—namely, the relations of arterio-sclerosis to the kidney, sick or sound.

Historical.

A generation ago, when "high arterial tension" began to awaken the interest of physicians, this condition was regarded as belonging essentially to disease of the kidneys. Such was Traube's view of it; such was George Johnson's, Burdon-Sanderson's, Mahomed's likewise. The first shifting of this attitude was, I believe, due to Mahomed, who proved that persistently excessive arterial pressures were not rarely to be found in persons in whom symptoms of renal disease had not become manifest; still Mahomed supposed, none the less, that this increase of tension essentially pertained to renal disease in one kind or another. In his brief but fruitful life Mahomed did not get beyond the doctrine that these high arterial pressures constituted an initiatory, latent foreboding of renal disease,[1] a stage which he denoted as the "prealbuminuric stage"; not very happily as it proved, for, as we now see much more clearly, albuminuria is far from being a peculiar or decisive symptom of Bright's disease. Not only so, but as Huchard and I argued fifteen years later, albumen and high blood pressures, even when taken together, are not by any means decisive of a diagnosis of chronic renal disease in the ordinary sense of the term.

Soon afterwards arose another dislocation of opinion, when Lancereaux and Gull and Sutton[2] contested Johnson's alleged arterial hypertrophy, and in so doing lifted the whole problem of cardio-arterial disease, and especially of the red granular kidney, from the narrower notion of a kidney disease into the larger conception of a general constitutional distemper of which the kidney disease and the vascular disease were but coefficients. Besides, the exaggerated notions of the effects on blood pressure of vaso-constriction in the kidneys, as interpreted especially by Traube, were shaken by Cohnheim's proofs that arterial constriction confined to the renal areas is quite inadequate to produce even a temporary rise of general arterial pressures.

On account of my association with Sanderson and Mahomed in their researches, I was requested by Dr. John Ogle, then editor of the *British and Foreign Medico-Chirurgical Review*, to report upon these problems. And, while preparing for that now obsolete article, certain suspicions that Mahomed's prealbuminuric stage did not always issue in what, clinically speaking, we classify as one or other kind of Bright's disease—suspicions I had discussed with my lamented friend shortly before his death—grew and took more definite form in my mind. By the nature of this inquiry, however, a long period of time had necessarily to elapse before it was possible by experience to be assured that excessive blood pressure may enter into more than one clinical series; and a still longer interval before I could hope to carry this persuasion to others. To compare morbid series so protracted as these, was, generally speaking, possible only in private practice; yet in private practice at the end of such a clinical series to obtain a necropsy was a very infrequent opportunity. On the other hand, in hospital practice patients came and went too irregularly for long and continuous observations of disease. Sphygmographic curves, again, however suggestive to a practised operator, were not of much value for record of pressures. We had no pressure gauges; and even yet the graphic record of any continuous course of blood pressures depends too much on the occasional zeal of a house-physician. At any rate no trustworthy and continuous series of such records were then, if they be now, open to the inquirer; as they are, for instance, in the courses of pyrexia. Still in time, by observing some private cases throughout, by watching one case in particular of hyperpiesis without Bright's disease—a thread upon which much of my material was strung—from first to last through its period of eighteen years, by selecting and patching longer and shorter terms of other cases seen piecemeal, and, latterly, on the invention of pressure gauges, I was enabled, by approximate verifications, to apply some standards of comparison, and to satisfy myself that a certain process marked by excessive arterial pressures may and often does arise without the initiation, intercurrence, or sequel of the events known to the clinical physician as chronic Bright's disease in any of its forms; and is significant of another and a different clinical series, though ultimately damaging the heart and arteries in like manner and no less irreparably. This alternative clinical series I named at first "senile plethora," but, the malady being not one of senility, I suggested the alternative name of "Hyperpiesis."* Unfortunately, many too literal authors

* In my first publication on this subject, an address to the Hunterian Society, written in 1894 from materials collected between 1870 and 1889—in which year, for three years, I retired from practice—the term "hyperpiesis" was introduced as an alternative name. In 1896, in my Lane Lectures, I preferred this name.

persist in detaching this name from the malady or total morbid series thereby indicated, to confine it to the mere phenomenon of high blood pressure under whatsoever circumstances. But, whatever our terms, I think it is now admitted that, although in Bright's disease or in certain kinds or modes of it, persistent excess of arterial pressures is an obligate condition, a like persistent excess may nevertheless, in obedience to some causes as yet unknown, arise independently of it, and, indeed, be engaged in another morbid series.

During the years of which I have spoken Huchard was engaged in similar observations, and also in discriminating this alternative clinical series, not Bright's disease though correlated with high pressures. He attached to it the name of "Presclerosis," a name even less happy than mine, as it seemed to signify, and, indeed, was intended by him to signify, that the disease, when fully manifest, would be that of Arterio-sclerosis. To this issue I shall return presently.

Now, to digress for a moment from renal disease and to return to arterio-sclerosis, Professor Osler, in the third edition of his textbook, New York, 1898 (p. 771), when speaking of arterio-sclerosis, concluded:

> There are certainly two groups of cases, one in which the arterio-sclerosis is the first change, and the other in which it appears to be secondary to a primary affection of the kidneys. The former occurs, I believe, with much greater frequency than has been supposed.

Dr. Samuel West, in his Lettsomian Lectures for 1899, speaks on the problem under discussion no less definitely; although, as I shall say presently, I cannot quite accept his views on the whole. However, he separated from Bright's disease, as I had done, the deteriorated kidneys connected with advanced atheromatous disease, or the—

> "So-called senile or gouty kidneys" . . . because although "often markedly interstitial . . . they need not necessarily be granular, and are often large." . . . "*Moreover the cases need not run the clinical course of granular kidney.*"

I italicize this sentence as it coincided very nearly with my previous discrimination. To judge by the context, Dr. West clearly intended by the name "red granular kidney" to signify, not a mere aspect of the kidney in the literal meaning of the adjective, but something more specific; namely, a particular series of clinical events—a certain morbid process or "disease." That Dr. West had not, in 1899 at any rate, accepted my farther distinction between arterial degeneration secondary to excessive pressures and the decrescent form—indeed, he did not then record any arterial pressures—made his testimony peculiarly valuable by its clear separation of the group of renal patients from other arterio-sclerotics, and of the red granular proper from other rough or deformed kidneys. I must assume, however, that Dr. West's contrasted group of non-nephritic arterio-sclerotics was a mixture of the cases I had distinguished as decrescent (or involutionary) and hyperpietic respectively. He may indeed have regarded all high pressure cases as renal.

Again, whatever pathologists may decide concerning the late Dr. Savill's testimony to Johnson's arterial hypermyotrophy, I may at least quote his seventh proposition:[3] That arterio-sclerosis may be independent of renal disease, as "in 22 of the 31 cases [forming the basis of his paper], the urine was healthy during life, and the kidneys found normal after death, excepting for the slight degree of fibrosis commonly found in all the organs of aged people." If Dr. Savill had thought fit to accept my distinctions between infective, involutionary, and hyperpietic arterial disease, the proportion of the high pressure cases would have been considerably lower; but the argument would not have lost its importance.

For further weighty testimony to the same effect I must pass over some intermediate years and come to the

Opinions of the Present Day.

Professor Krehl, whose authority in such matters is unquestionable, says[4] that we are disposed to attribute all persistently high blood pressure to nephritis, which assuredly is an error ("es ist gewiss nicht richtig alle starken Erhöhungen des arteriellen Drucks auf eine chronische Nephritis oder Arteriosklerose zurückführen"); to the sense of the words "oder Arteriosklerose" I shall refer again. He relied upon a "series of cases with high arterial pressure in which during life there was no reason ("Anhaltspunkt") to assume the presence of chronic nephritis; and in one of these, in which a necropsy was obtained, neither macroscopically nor microscopically were there any signs of renal disease.

My friend Dr. John Cowan of Glasgow, with whose researches in this respect I became acquainted when he was preparing for the M.D. thesis which he read before me in 1902,[5] expressed the following opinions:

> Arterio-sclerosis is very frequently associated with chronic renal disease, especially the granular variety; but it may occur without any renal lesion at all, or associated with one which is evidently secondary to itself (arterio-sclerotic kidney). The one common factor of all these cases is the presence of continued high arterial tension, which is now accepted as its immediate cause.

That in this broad division Dr. Cowan did not discriminate as I had done, and do still, between arterio-sclerosis, the result of high pressure, and those of toxic and of involutionary origin need not concern us now.

And, farther, at Toronto, in 1906, Dr. Stengel reiterated what I had pointed out many years before, that albuminuria in cases of arterio-sclerosis must not be taken alone as evidence of Bright's disease, nor necessarily as a foreboding of it. And in 1907[6] Professor Rose Bradford, while warning us likewise against the mistake of arriving at a diagnosis of renal disease merely on the result of one examination of the urine, said that no mistake is more common than to diagnose acute or chronic nephritis merely on the presence of albumen. He reminds us, in a phrase which I desire to emphasize, that "diagnosis must depend on clinical examination."

Fränkel says:

> That general arterio-sclerosis can be the result of renal disease is seen in the young "Nephritikern," but that high pressure cases exist independently of it (of renal disease) is seen in many in which the urine, if it may contain a little albumen, is of full colour and specific gravity, with but few casts of any kind, and practically no granular casts.

Romberg also collected notes of cases of plus pressures without evidences of renal disease. In one of these he obtained a necropsy, and found the kidneys practically normal both to the eye and to the microscope; but he oddly objected to these cases being regarded as the arterio-sclerosis of high pressure lest by this view of the matter physicians should be induced to treat this symptom! Surely if we are to discover causes, and to neutralize or prevent them, we must discriminate between the several series of phenomena as well as we can.

Geigel, in some reflections which, again, seem not to distinguish between the arterio-sclerosis due in the main to exorbitant blood pressures and that due to other causes, says that the relation of high arterial pressure to renal disease is not understood, for the arterio-sclerosis may be the previous event.

Dr. Leonard Williams says[7] that high arterial tension is, in the minds of far too many, so indissolubly connected with renal disease that, if by examination of the urine and otherwise they persuade themselves that the kidneys are not affected, they are unable to realize that the excessive pressure can be doing any harm.

In the pathological laboratory reports of Berlin City Hospital I see that cases of high arterial pressure have recently been divided into the two classes of "Arterio-sclerosis" and "Chronic Nephritis," which betrays the still prevailing assumption that arterio-sclerosis is the cause of persistently excessive pressures rather than—in one of its kinds—the effect of it; yet still the division does serve provisionally to segregate the renal from other cases of similar and often no less exorbitant arterial pressures.

Clinical Criteria.

I have stated, on my own testimony and on data obtained from other authors, that the presence of albumen in the urine is of itself no criterion. About 1878 I was consulted by a medical friend who believed himself to be the subject of chronic renal disease. He had a large heart, a sustained pulse of high resistance, some slight oedema on the shins, and a little albumen in the urine, which was, however, of good colour and specific gravity, and often lateritious. On repeated examinations but a few casts were found, and these hyaline. As my experience then stood I was unable to give a definite diagnosis; but in the absence of the

ordinary clinical symptoms of renal disease, in the absence, for instance, of characteristic headache, of nausea, of anaemia, of retinitis, and so forth, I ventured to speak encouragingly. My patient was a man of means and had lived well—too well. On a restricted dietary, some rest, and courses of alterative and laxative drugs, his life was spared for many years; no symptoms of renal disease appeared, and he reached old age before at length his heart was defeated. This case was one of the signals on my path, and as I discovered more and more cases of a similar kind I ceased to regard albuminuria, even with high arterial pressure, as necessarily indicative of Bright's disease. In the deposit may be found a few leucocytic or epithelial cells, and some hyaline casts; granular casts, on the other hand, if found repeatedly and in some numbers, are of grave omen, and probably significant of chronic Bright's disease.

The mean age of the subjects of granular kidney, again, is somewhat lower, not than that of gathering pressures but than that of the later and graver consequences of their long-continued strain—the later stage which too often is the first to be submitted to the physician or to be detected by him. One of my M.B. candidates found the mean age of death in 261 cases of Granular Kidney (definite cases selected from hospital and *post-mortem* records) to be 56. "White forms," of course, have a lower mean age incidence. In Hyperpiesis the ultimate defeat of the heart is accomplished, so far as I can reckon, about a mean age of some five to ten years higher.

As regards the more refined methods of appreciating renal values we meet with some difficulty. The researches of Professor Rose Bradford, of Pässler, v. Noorden and Ritter, and others have shown that in damaged kidneys nitrogenous secretion may for short periods be at least normal in amount, but yet drop suddenly or shade off gradually into periods of inefficiency. Dr. Thomson Walker[§] has discussed this source of fallacy, and examined the urine by the methods of cryoscopy, toxicity to animals, electric resistance, and so forth. He decided that the phloridzin and methylene blue tests were, on the whole, the most trustworthy, but as the phloridzin method is somewhat delicate he regards that by methylene blue as the best for ordinary use. Moreover, it is perhaps safer than the phloridzin test. Dr. Walker published some interesting charts of the behaviour of these substances. Cryoscopy of the blood or urine, so I am informed by friends who have used it, has proved an untrustworthy test, at any rate as far as renal affection is concerned. Sir James Barr, who has paid some attention to the method, writes to me: "I have had to be careful so far not to draw any decisive inferences from it."*

Morbid Anatomy.

In respect of the kidneys, what, in the confused heap of cases which are huddled under the title of arterio-sclerosis, do we find after death? We find in some of them kidneys which are either irreproachable or so little deteriorated as to be acceptable as "fairly healthy"; in not a few there is genuine "granular kidney"; and in another large class the kidneys present a fibrosis, from slight or moderate degrees to extensive layers, streaks, or bands with conspicuous deformation.

But as we enter into the histology of renal disease there are certain conditions of a preliminary kind which we must bear in mind. We must remember that the parts of organisms so highly differentiated as the mammalia have themselves become so specialized in structure as to stamp a peculiar character not only upon their normal functions, but also upon their defects. As the more peculiar the structure of an organ, and the more peculiar its business, the wider its separation may be from the forms and the functions of co-operating parts, so with its faults and impairments; these likewise, especially in initial stages, will have their special features and their limits. Thus, in the kidney we should expect that the features of derangements of function and of structure would have much of their own; as the liver, the heart again, the nervous centres, and the rest go right and wrong each after its own fashion. The kidney consists, it is true, of vessels, secretory cells, and connective fibre—elements which all over the body obey certain general laws of growth and decay; yet, notwithstanding, because in the kidney they have special dispositions, relations, and functions, so the modes of growth and decay in the kidney proceed on lines congruous among themselves but differential in respect of other organs. And within the organ itself the reciprocal changes of the tissues will prove to vary more quantitatively than in quality. Renal disease, then, has its own histological features, features not those of disease of the heart, of the nervous centres, of the stomach, and so on; to the observation of renal disease, then, we must bring certain views—views obtained from a consent of experts—views not precisely those deriving from observation of disease in other organs. For instance, as the arteries distributed in the kidney are terminal arteries, an interference with one of them will partake of the form of an isolated infarction. Also, as by their tufts in the glomeruli, and in their relation to capsular and connective tissues, they are peculiar, so their affections will have according and differential features, and will play within a narrower range. Furthermore, the canaliculi, as they take origin from the tufts, depend in a peculiar manner upon the functions and the disorders of these sources. Thus it is that diseases of the kidney, because it is a kidney, have characters peculiar and narrow; not those of diseases of any other organ.

Now, if this be so, the several diseases of the kidney, in so far as they present features which mark them off from diseases of other parts, will among themselves and amid their particulars present certain and considerable resemblances, resemblances in the features which separate them from diseases elsewhere. In all of them we shall expect to observe common characters; and this especially in the first stages of shortcoming or injury, for, in so far as failure or injury may have proceeded, we shall expect these structures to have descended from peculiar to more general characters. They will be melting into the common run of tissue decay, returning into the common dissolutions of all living tissues. It is, then, in the earliest stages of impairment that we should expect still to discern the characters specific of the renal diseases but alien from the diseases of other parts; in the later stages we shall expect to find these characters drifting into a universal kind of wreck. And as it is chancy to catch an internal viscus in an initial stage of defect, but easy to lay hands upon it in the ultimate issue, so we are apt to make too much of the ruins in which the metamorphoses characteristic of the organ have vanished.

To press these considerations a little closer. In the early stages—the stages of initiation—we find in the kidney, according to its several arterial units, a lobular arrangement of its affections, yet within each area a mutual dependence of disordered constituents; we shall scarcely anticipate that disease will express itself in single tissues, such as the connective or the parenchymatous or the vascular, because these elements in the terminal arterial unit live a common life—the disorder of one is the disorder of all. For instance, the blood on leaving a tuft has lost much of its water, but is not yet relieved of the corresponding quantity of waste;† if then this waste happen to be abnormal, or, still worse, if it contain some toxic ingredient, the efferent vessels and the tubes, however considerable their capacity of repair, must undergo at least temporary disturbance. Probably the tufts themselves and their capsules will suffer also; no ideal limits can be set to the implication of the whole functional unit. That nevertheless in the kidney substance the visible effects are generally scattered and focal is curious; but this inconsistency I do not stay now to consider, as it is not a peculiarity of the kidney, nor of terminal arterioles; it is notable in the affections of most, if not of all organs—of myocardial lesions, for instance. For some obscure reason, over all dimensions of an organ there is not equivalence; some sections seem to be more vulnerable than others. Especially as regards the kidney, then, we are not to look now for a disease of the vessels, now for a hyperplasia of fibre, now for a degeneration of the secreting cells; but, if in some irregular proportions of incidence, a group lesion. And investigation tells us that, strictly speaking, there is no such process as an interstitial nephritis, as exclusively contrasted with a parenchymatous

* In an article on viscosity of the blood in the forthcoming number of the *Quart. Journ. of Med.*, these questions will be discussed more at length.—C. A.

† It is true that the tufts are supposed to be a little more than filters—to have some excretory virtue, but not so much as to invalidate these reflections, which, by the way, are made in principle by Adami and Nichols also (loc. cit.).

or with an arterial nephritis; or if at the outset there be any such difference, this will soon become blurred, and blurred more and more until the special features of renal disease are confounded in general dissolution. And yet it is with these ultimate stages, when specific features are waning or obliterated, that pathologists have for the most part to be content. For these reasons the name Chronic Interstitial Nephritis is misleading; the perversion is at least as much in the blood vessels.

It is understood, then, that although disease of sundry kinds, of different nature and clinical course, may affect the kidneys, yet that when we come to the ultimate states with which we have usually to be content, we are examining documents in which the inscriptions of whatsoever disease have become blurred or erased; moreover that if indeed we obtain access to specimens in early stages, we must expect, even from the outset, that the peculiar structure of the kidney will by its very peculiarity be limited in its range of expression; its manifestations must be in its own vernacular.

Now, as we have to study such kidneys as we can get, and as their morbid anatomy in its early stages is peculiar in mode, and in its later, that is in most of our specimens, is falling into chaos, we shall be the more persuaded of the importance of controlling the necropsies by the clinical records. We shall deprecate the modern seclusion of pathology from clinical medicine, each in its solitary office; we shall regret that laborious papers should be written on the morbid anatomy by pathologists who are often ignorant of the clinical history of the cases from which their materials were detached, or inexpert in co-ordinating the two lines of study. In terminal states, for instance, the two shrunken kidneys which in this country we have been accustomed rightly to distinguish as the small white and the red granular, may, alien as they are in nature, be so far reduced by decay to a common denominator that microscopic analysis no longer marks any signal differences. Let us grant, then, that a classification of renal diseases cannot be founded on a mere anatomical basis; at any rate not in the obsolete stage known as the "shrunken" kidney.

In the earlier stages, then, we shall seek what I may call the provincial features of its tissue changes, the stages of kidney diseases on which the specific conditions inherent in the organ itself will stamp each kind, however different, with its own seal; in them all, while each retains its identity, its range of expression will be limited by the renal style of organic reaction.

If these thoughts seem tedious, I must plead again that they are too often forgotten. Thus, in Germany rather than in our own country it is true, we peruse long and really admirable researches into *Schrumpfniere* (shrunken kidneys), painful endeavours still to decipher in these relics the characters of the several modes of Bright's disease. If in shrunken kidneys remnants of differential character may still be detected, yet the seals are broken; at this stage—a stage in which the peculiar renal devices are obsolescent—we can hardly expect to decipher the notes of foregone specific series. If in these blurred characters we are to read anything, I reiterate that we must have with us continually the whole morbid series—the clinical story. When at length the amyloid kidneys, small whites, terminal whites, red granulars, are merged in a common degradation, what scrutiny then can discern what were the original relations of time, place, or quality between the parenchymatous, the arterial, and the fibrotic perversions? The mutual interdependence and the integration of function and structure in the kidney being such as we have seen, shall we be surprised if then, at any rate, no absolute divisions betwixt parenchymatous, interstitial, or glomerular disease can be made? We may find in the proclivities of this vitiated tissue or that variations in the relative rates or quantities of change, but we shall find the seal of renal idiosyncrasy upon them all, and we shall, I repeat with emphasis, be more and more convinced that it is only by a close combination of clinical with pathological investigations that we can frame any fruitful classification of renal diseases—a classification based not upon superficial but upon profounder affinities. Jores, Jores and Prym, and Roth, in their minute histological descriptions of the shrunken kidney (*Schrumpfniere*), admit—or, rather, in his latest essay,[9] Jores admits—that, invaluable as dissections may be, yet the anatomist, without the clinical histories of the cases, cannot go very far to interpret the various diseases by which the kidneys had been damaged. When, therefore, an author on the subject so eminent as Professor Saundby hesitates to follow the English "dualistic" conception of chronic parenchymatous and interstitial nephritis (I use these names for convenience), because on the *post-mortem* table intermediate forms can be procured all the way between the large white and the small red kidney, the validity of his argument is not convincing. For instance, upon what anatomical notes of aspect or of tissue change in ultimate shrunken kidneys can we explain the correlation from the outset of high pressures and cardiac hypertrophy in some of them, and the uncertainty and irregularity of their occurrence in others?

With these reflections let us turn to consider so much of renal disease as may bear on arterio-sclerosis; for such are the limits of my subject. What, with the indispensable assistance of Professor Lorrain Smith, I argued before the Association of Physicians at Liverpool last summer, I would now enter into a little more fully for the sake of the study of arterio-sclerosis which I have long had in hand.

In coming to close quarters with the pathological anatomy of the kidney, I would note that one broad result of the researches of Jores and his pupils is, that in shrunken kidney, whether small white or red granular, the arterio-sclerosis, even if restricted to the renal arterioles alone, is arterio-sclerosis proper—that is, subintimal hyperplasia with splitting of the internal elastic layer.* Renal arterial disease, then, does not differ from arterio-sclerosis elsewhere, as generally recognized by modern observers. If renal disease without arterial disease, discoverable at any rate by the microscope, is rare, yet there is no arterial disease peculiar to the kidney. And generally in renal disease the state of the arteries is arterio-sclerosis; yet there are at least two other forms of change in them which need some discrimination—namely, endarteritis obliterans, and the hypertrophy of the media alleged by Johnson, Ewald, and Savill.

The former, endarteritis obliterans, is incidental to a twig caught in a focus of inflammation, which thus becomes itself inflamed but, in unmixed cases, does not degenerate. The distinctions to the microscope are that the elastica is intact, no fatty granules are seen as in arterio-sclerosis, all the coats are involved, there is more cell proliferation, more persistent fibrosis, and the vessel tends directly to occlusion of its lumen, with consequent atrophy of the area of its supply (canaliculus). Excellent illustrations of this process are to be seen in the fourth edition of Professor Woodhead's *Practical Pathology*, pp. 347–9. Endarteritis obliterans is, then, a local incident, with secondary consequences. Forasmuch as arterio-sclerosis, on the contrary, does not tend so much to closure, it is less of a menace to the nutrition of its unit.

The other kind, hypertrophy of the media, that is to say, pure hypertrophy not fibrosis, is prima facie no improbable event. One is tempted, indeed, to presume that, under the lateral pressures of high tension, it would affirm itself. Jores is not indisposed to grant that the assertions to this effect of certain English observers, accepted by Ewald, may be true. But, as our own pathologists have demurred, he points out that we have no standard of calculation for these dimensions. How are we to determine the precise taper of the section from its bifurcation; the true proportion of the coats to the lumen; and above all the degree of contraction of the muscle on fixation? (MacWilliam and others). Before we can decide on any reasonable limits between a physiological and a pathological increase, we must find such standards; and we must ascertain if this simple hypertrophy occurs in states of high pressures other than renal disease. In many cases recorded as hypertrophy of the media, Jores suspects that the thickening was not primarily of the media, but was ordinary subintimal arterio-sclerosis; and he reminds us that, when it occurs, unequivocal arterio-sclerosis will probably be found in other vessels of the body. In any case a media

* In the subsequent discussion at Kensington some speakers seemed not to be clear as to the precise meaning of the name "arterio-sclerosis." Pathologists are now quite precise in applying it to the definite process mentioned in the text, a process in nature identical with the process which in large vessels is called atheroma; so that Marchand's and Aschoff's name "athero-sclerosis," now coming into use, will probably be adopted generally.

thus altered seems to be unstable, more prone than it should be to degeneration, fibrous or fatty.

The affections of the arteries in the kidney are, then:

1. Arterio-sclerosis, as already designated; this is the frequent alteration.
2. Endarteritis obliterans, an incidental and secondary condition.
3. Thick media, perhaps a hypermyotrophy (?).
4. Infective processes, such as the scarlatinal, the syphilitic, etc., attacking the vessels. And to these classes may be added the accidental processes of infarction and of embolism.

The next notable result of the work of Jores and his school is that, although in chronic renal disease arterio-sclerosis is generally found not in the kidney only but also in the splenic arteries, the pancreatic, etc., yet the intimate vascular network of the myocardium and of the skeletal muscles, whatever the state of the larger trunks, is practically always unaffected. The coronary trunks, for instance, may be conspicuously atheromatous; yet on tracking them into their intramuscular network these vessels will generally prove to be free from any trace of disease. If I may judge from current opinion, this very important discovery is not generally known; yet, among other postulates, it helps us to account for that no less remarkable and very salutary maintenance of the nutrition of the walls of the left ventricle in many cases of damaged coronary stems which was demonstrated but not fully explained by Kanthack and myself. I never accepted the notion of Hasenfeld[10] that increase of arterial pressures depended upon implication of the mesenteric vessels, an opinion still surviving here and there; arterio-sclerosis arises first not in the vessels of the alimentary canal, but in those of the spleen and pancreas; and this is so uniformly the case that in order to avoid the toil of searching through the body for evidences of arterio-sclerosis, it is a sufficient test for ordinary purposes to record the state of the vessels of the spleen; next in order after them atherosclerosis usually attacks not those of the bowels or liver but those of the heart and of the brain.

In the renal vessels, then, arterio-sclerosis is the characteristic change; but is arterio-sclerosis an essential part of all the renal affections of which we are speaking? Apparently not, but it is rarely quite absent; it is commonly to be found if assiduously sought for. Roth, a disciple of Jores, has described[11] six cases of diseased kidney without arterial disease; Löhlein, working at Leipzig, has published* three cases; and Jores himself one case at least (Case III in his 1904 paper). Still these cases are few, and most of them in young persons; also Heineke[12] regrets, as I have done, that for lack of the clinical records such observations as these should have lost much of their value. On the other hand Prym[13] reports—and this is an important caution—that in 66 out of 70 persons past middle life (after 40 years of age) the intima of the fine and medium arteries of the kidneys is thickened, and this without arterio-sclerosis elsewhere in the body. This change, which even in the kidney does not amount to arterio sclerosis, or even trespass beyond physiological limits, may be taken as normal for elderly persons. Crossing these limits, the arterio-sclerosis so rarely absent in diseased kidneys may be obvious as a part of a general arterio-sclerosis, the main renal arteries standing open and stiff, or on the other hand may be so slight and intimate as to be overlooked by the pathologist who does not minutely examine the intravisceral twigs, and especially the vasa afferentia.

However, unable as we may be in the absence of clinical data to sort the heap of obsolete kidneys examined, and to attach the kinds each to the specific morbid series to which it belonged, yet by this character or that we may try to distribute some of them without serious error.

For instance, we may suspect one or two of them to be amyloid, though in some researches these are expressly excluded. More confidently we may assume many, if not all, of the exceptional specimens referred to as without arterio-sclerosis to have been "small whites." Our English dualists are pretty surely right in assuming that the "red granulars" all present arterial lesions—at least, in the interlobular and afferent arteries of affected units. Jores himself states that in practically all his specimens, even in those secured in early stages, arterio-sclerosis, if nowhere else in the organ or outside it, was found in the vasa afferentia of the affected lobules. The presumption is that it begins there, but in these specimens the distinction between the small white and the red granular kidney, whether resting on necropsy, on clinical history, or on both sets of data, was not made. In one specimen the arterio-sclerosis was of the vas afferens only, "sharp at its offshoot" from the interlobulare. Now, although this kidney was apparently not a red granular—for it was pale yellow, smooth, and undiminished in cortex—yet, as it by no means stands alone, and as there is no arterial disease peculiar to the red granular kidney, the site of the initiation of the arterial affection is significant.

We may take it, then, for the present that of the Red Granular Kidney arterio-sclerosis is a primary, invariable, and essential part, and presumably begins in the intimate vascular ramifications; although an arterio-sclerosis of the larger vessels may be an epiphenomenon, due to prolonged high tension, and appear later. But the next question is whether the red granular kidney is or is not an essential part of general arterio sclerosis? In other words, Is it a general arterio-sclerosis invading the renal artery, and penetrating to its inner twigs, which makes the red granular kidney? On this dilemma I will begin by citing again, from our joint paper at Liverpool, the conclusions of Dr. Lorrain Smith. Passing over the fibrosis of the parenchymatous and of the acute interstitial forms of nephritis, he says: The fibrosis of *chronic interstitial nephritis* occurs in limited areas, alternative areas being free from fibrosis. In the fibrous patch the glomerulus is converted gradually into a mass of hyaline fibrous tissue; the tubules are to a large extent destroyed, atrophied rudiments alone remaining. So far, the secreting mechanism disappears; but the unit next to it—artery tube and interstitial tissue—may be normal, unless, indeed, it be hypertrophied. Now from this state, he adds, the "arterio-sclerotic kidney"—the kidney, that is, which partakes in a general arterio-sclerosis—differs considerably. In this disease a unit deprived by the sclerosis of its free supply of blood, is replaced by a small amount of fibrous tissue, and resembles an infarcted area. This, he concludes, is not nephritis in any form. In unaffected areas—that is, in areas in which vessels may be fairly normal, or, if affected, may still be pervious—the glomeruli, tubules, and interstitium are in the same degree normal. We may call the arterio-sclerotic a withering kidney, as contrasted with the granular kind, which consists in a slow irritative process; although both forms present the curious focal distribution to which I have already alluded as a note of the effects of toxins here and elsewhere.

Now I venture to think that even in the reports of necropsies such discernment as I have indicated is not always observed. With these problems in view I have run my eye over a wilderness of *post-mortem* reports which for the most part put us off with such loose phrases as "kidneys granular," "kidneys slightly granular," and so on; much or little "granularity" being reported not with a specific or even a precise meaning, but on superficial appearances, and according to the general notions and personal vocabulary of the reporter. If in superficial aspect such a kidney may be described as "granulated," the adjective may well convey only a subordinate fact. *Post-mortem* clerks often, and, I venture to think, professed morbid anatomists sometimes, forget that as a technical term "granular kidney" does not mean merely a rough and deformed organ, shrunken fibrous or senile, but a certain disease, a fairly uniform series of morbid phenomena. And, as a name in nosology, "Granular kidney" is to be attached not to any kidney the capsule of which is rough, shrivelled, or wrinkled, and the substance fibrous, but is to signify a certain, usually long, series of morbid events, positive and negative, recurring in clinical experience with fairly uniform symptoms, and in morbid anatomy with fairly uniform alterations of form; especially in the kidneys, the arteries, and the heart.

Fibrosis may appear specifically as an active strangling invasion; or in substitution for a "nobler" tissue; or as a phase of atrophy, when the blood supply has been very gradually curtailed by the obsolescence of considerable areas of the vascular tree. Lancereaux was wont deliberately to argue that the arterio-sclerotic and the granular

*In a local laboratory report which I have not seen, but which has been fully quoted in various periodicals.

nephritic kidney were identical; he included both as "an actual nephritis of arthritic origin"; and confusion of arterio-sclerotic renal atrophy with the nephritis of "Granular Kidney" is still too common. The decrescent arterio-sclerotic process, in such patients, Ziegler demonstrated in the other parts of the body also, characteristically in the pancreas. Ewald, in 1881, virtually agreed with Ziegler, and pointed out moreover that in arterio-sclerosis the vascular change and the consequences of this kind may be found in many organs while the kidneys may be but little affected or even unaffected. It was this interpretation that Dr. West, in the Lettsomian Lectures already quoted, accepted, and pursued. He "excluded from the category of granular kidney certain . . . degenerated kidneys . . . in advanced atheromatous disease, and in the chronic gout of elderly persons . . . kidneys often marked by interstitial change, and often not small, but large; and not running the clinical course of granular kidney." Thus Dr. West emphasized the axiom that in the name "Granular Kidney" the adjective is not the mere superficial glance of a morbid anatomist, but is the name of a certain disease regarded in its processes and conditions, clinical and pathological, as a whole. Again, of the fibrous kidneys thus reckoned at random as "granular" Dr. Rolleston says:*

> They are in the great majority of cases the result of atrophy from diminished blood supply, depending upon arterio-sclerosis of the renal arteries . . . where this is most marked there the tubules and glomeruli are most atrophied and the hardier fibrous tissue takes its place.

Recently, again, Dr. Rose Bradford writes[14] emphatically that in spite of occasional transition forms, and of some obscurities of pathogeny, the true granular kidney is to be distinguished from the arterio-sclerotic kidney; and he also relies chiefly on the clinical course. Senator, to whose excellent book there is, unfortunately, no subject index, on pp. 117 and 291 et seq., admits that the contracted kidney of irritative origin is to be discriminated from the arterio-sclerotic (*Nierensklerose*). Adami and Nichols[15] likewise consider the arterio-sclerotic kidney as etiologically and clinically different from the granular, although on the *post-mortem* table the difference may not, so far as the kidneys go, be easy to define. Thus, of shrunken kidneys, these authors distinguish four—the two forms of small white, the granular form, and the arterio-sclerotic. In the arterio-sclerotic they agree that an atrophic, scarcely toxic, process is concerned. Eichhorst, in the sixth edition of his textbook, is rather confused among the many shrunken kidneys, but agrees that the distinction of the granular and the arterio-sclerosis forms rests upon the clinical history. Aschoff is of the same opinion;[16] he gives an excellent figure of the arterio-sclerotic form, pointing out that it arises from athero-sclerosis of extrarenal origin, and traces its origin in the advancing alterations of age, in the presence of athero-sclerosis in other areas, and so on. He also describes in granular kidney the primary arterio-sclerosis of its fine inner vessels, and the later appearance of general athero-sclerosis. Fahr of Hamburg[17] says that in the kidney arterio-sclerosis frequently reaches high degrees, even causing much shrinkage of the organ, with little harm to its parenchyma. Jores and his school lack the clinical clues—he cannot get clear himself of anatomical ruins; again and again he betrays some unfamiliarity with those terms of morbid series, motley and long processions which merge ultimately in a common dissolution; as for instance, when he, and some other authors, say that, as general arterio-scleriosis penetrates to the finer vessels of the kidney, the case becomes one of renal disease. We note in another paragraph a like confusion of kind, when albuminuric retinitis is identified with simple arterio-sclerosis of the retinal vessels; the erroneous assumption here also being that when arterio-sclerosis penetrates to the retinal arteries the result is "albuminuric retinitis." And in the lists of cases published by himself, Prym, and Roth, the physician perceives that from a clinical point of view a more discriminating collection might have been made. I trust that I have made so manifest our gratitude to Jores for his accomplished work on arterio-sclerosis, that I may venture to enter a caveat on a side of the subject on which he does not, I believe, profess to be an expert. The difficulty of disentangling these states on necropsy is admitted; especially, for instance, in cases of granular kidney arising in persons of mature age in whom general arterio-sclerosis had made some independent progress.

When, therefore, morbid anatomists have to speak of these rough fibrosed kidneys they must use a less equivocal adjective, one not already earmarked in the sphere of the physician. It would have been more convenient if the physician had provided the disease with some other name—one not seeming to apply only to a certain surface resemblance of many kidneys diverse in nature; however, the name "Granular Kidney"—not "Granular Kidneys" in the plural—will probably persist; and it has at any rate the advantage of not committing us to any frail hypothesis concerning the nature of the disease.†

Nevertheless, it may be reasonably argued that, if many units are obsolete in function, it matters little whether this destruction be due to occlusion or to a chronic inflammation. Yet of this demur I think that certain qualifications are necessary; we have seen that endarteritis obliterans, an irritative process, makes more surely for complete vascular occlusion than does arterio-sclerosis. Furthermore, it is here that we find ourselves faced by the farther question of the nature and incidence of a hypothetical toxin behind Granular Kidney, and whether such toxin confines itself to raiding its vessels, or attacks the connective tissue and the parenchyma also. I have always suspected that in the foci of the red granular organ the parenchyma suffers directly and by some process more corrosive than mere withering. For instance, the plumbous kidney, which smoulders into the granular kidney, if caught in an early stage, presents—so Sir Thomas Oliver informs us—a universal parenchymatous affection, as seen first in cloudy swelling of the epithelium. It seems to me, then, that, although in a state of ultimate wreck, such original differences of nature may be erased, yet that the red granular kidney is the result of some process more virulent than an atrophy. Notwithstanding, as small fractional parts of healthy kidney structure will suffice for life, the focal distribution of its virulence enables the kidneys to keep at work for long periods without serious breakdown, and thus the disease often lies latent for years.

(To be continued.)

* In a discussion of a paper of mine at the Medico-Chirurgical Society January, 1903 (vide *Med.-Chir. Trans.*, vol. lxxxvi).

† For differentiation of syphilitic renal fibrosis, see J. Rose Bradford, Croonian Lecture, 1904; and Loomis, *New York Path. Soc. Trans.*, 1889.

The Oliver-Sharpey Lectures

ON

HEART FAILURE.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON,

BY

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LECTURE II.—THE ESTIMATION OF HEART FAILURE AND THE SIGNIFICANCE OF SYMPTOMS.

In this lecture I wish to place before you the method of estimating the degree of heart failure and of determining the significance of symptoms which I have employed for several years.

Before dealing more particularly with the method and its application, I shall first describe, in broad outline, the nature of the heart's force, the manner of its exhaustion, and the way in which symptoms are produced.

The Essential Factors in Maintaining the Circulation.

The function of the circulation is the supply to the tissues of a material capable of nourishing them, and the removal of such waste products as can enter the circulation. The heart and blood vessels are constructed specially to favour this object. The heart muscle supplies the force which maintains the circulation, and the blood

vessels are so constructed as to facilitate the work of the heart. Any disturbance in that adjustment must at once entail more work upon the heart muscle, inasmuch as a departure from the normal means the embarrassment of the heart in its work. From this consideration it will be seen that the essential factor in maintaining the circulation is the heart muscle, and any process of disease in the heart or blood vessels impairs the circulation by embarrassing the heart muscle in its work.

The Nature of the Heart's Functions.

As the heart possesses the power of varying its activity according to the bodily requirements, the force inherent in the heart muscle may be considered, for practical purposes, to be composed of two parts—namely, a part which is employed to maintain an efficient circulation when the body is at rest, and which, therefore, may be called the "rest force." The rest force is the minimal force which the heart can exert to maintain the circulation at a level consistent with life; an impairment of it leads inevitably to a fatal issue. The second part of the heart's force is that which is called upon when the body makes some effort. While the body is at rest this potential force is not exercised, but its existence enables us to undertake with ease all forms of effort. Inasmuch as this part of the heart's force is only used when exertion is made, it may appropriately be called the "work force" of the heart.

The Bearing of Disease Processes on the Heart's Work.

The reason for this division of the heart's power into the rest force and work force is that it unables us to understand better what constitutes heart failure. When we reflect that any disturbance of the circulatory mechanism leads to an embarrassment of the heart muscle in its work, we shall realize that heart failure means inability of the heart muscle to overcome successfully the obstacles opposing it in its work. The disturbances of the circulatory mechanism may be of a very varied character, and may arise from a great number of causes, and it is from the standpoint of possible obstacles to the heart muscle in its work that the bearing of all seeming abnormalities should be considered. Thus valvular defects should be studied, not as specific affections in themselves, but as sources of embarrassment of the heart muscle in its work, or as indications of disease which may have extended to and damaged the walls of the heart or blood vessels, for example, the aorta or coronary arteries. In like manner irregular action of the heart should be considered as to whether the irregular or incoordinate contraction of the chambers embarrasses the heart in its work, or whether its cause impairs the heart's efficient working. Arterial degeneration and high blood pressure, while requiring full consideration, should be viewed, so far as the heart is concerned, as agents tending to upset the normal adjustment of the factors which carry on the circulation, or as evidence of disease, which may affect the heart muscle or its blood vessels. The possibility of inherent defects in the muscle wall itself should be considered in all cases, as they naturally have a most important bearing on the heart's efficiency. In this connexion, insufficient or improper food, overwork, bodily or mental, too little time given for rest and restoration of the heart's strength, worry and sleeplessness, the reaction of the nervous system and other organs upon the heart, should all be taken into account when the factors producing heart failure are being considered.

How Heart Failure Begins.

Bearing in mind the division that I have given of the heart's power, it will be found that heart failure invariably starts in the first instance by exhaustion of the work force. The exhaustion is slight at first, but by the persistence of the causal factors it proceeds apace, until after a period, long or short, the exhaustion induces such distress as to compel attention, or the rest force is encroached upon, and with the exhaustion of the rest force a point of danger to the life of the individual is reached.

The Relationship between Exhaustion and Restoration of the Work Force of the Heart.

From this conception of the exhaustion of the heart's strength we can perceive the manner in which heart failure arises. The daily routine of a man accustomed to bodily labour shows a period of rest and a period of work, the one balancing the other—the period of exhaustion of the work force requiring a sufficient period of repose for its restoration. The life of man is so marked out that each day's work is roughly estimated by what a healthy man can do. If an individual has to do the work of a healthy man, but is hampered by some inherent defect, his work force is more speedily exhausted, and he needs a longer period for recuperation. If this is not obtained, then in course of time exhaustion increases, and the period of rest becomes less efficient and heart failure sets in. In the first instance, then, heart failure is no more than the inability of the heart to regain sufficient work force during its periods of rest. The rate at which heart failure progresses depends on the unequal relation between the bodily exertion and the amount of rest. The agents embarrassing the heart in its work need not necessarily be of cardiac origin; it may be the blood vessels, or diseases of other systems, or it may be due to some bodily condition, as obesity. When it is a heart lesion which embarrasses the heart in its work, the failure should not necessarily be considered as due to the heart lesion, but due to the individual attempting to do a healthy man's work handicapped by his defect. In the recognition of this fact we get the clue, not only to the cause of the heart failure, but a reasonable suggestion as to its rational treatment.

The Nature of the Symptoms in Visceral Disease.

Before dealing with the method by which we recognize heart failure, I will take the opportunity of presenting briefly to you a view of the symptomatology of visceral disease, which enables us to get a clear idea of the nature of symptoms. Visceral disease is made manifest to us by a series of phenomena, which can be separated into three distinct groups:

1. Symptoms due to changes in the organ itself, as alteration in its size, its shape, and, in the case of the circulatory system, in the rate and rhythm of the heart movements, and of the state of the vessels.

2. Symptoms due to impaired function, shown, it may be, in other tissues and organs, as in the case of heart affections, where syncope may arise from deficient supply of blood to the brain.

3. Symptoms due to reflex stimulation of other systems. This last class of symptoms includes, in the main, a series of phenomena which may be considered protective in their functions, and it is more particularly to these that I would desire to draw attention.

All organs of the body are endowed with a protective mechanism, which operates by calling into activity the functions of other systems. The immediate cause of this awakening of the protective mechanism is the exhaustion or disturbance of the function of the organ. The evidence for this view of symptoms may be best studied in affections of the heart. If, for instance, we wish to get an idea of how the heart performs its work, we shall find the best evidence in the study of the class of symptoms included in this group. When exhaustion sets in the first sign is given by some sensation of distress. This sensation arises by calling into play some part of the nervous system. The sensations may be of varied character, as a sense of exhaustion, choking sensation in the throat, tightness across the chest, dyspnœa, or pain. When such sensations arise during effort they act as an imperative call to desist from further exertion. When, then, we seek to estimate the condition of the work force, we find a guide as to its amount by estimating the response of the individual to effort. Exhaustion of a healthy heart will produce symptoms identical with a diseased heart, and the difference is only in the ease with which these symptoms are induced, or, in other words, in the amount of the work force. Hence as the appearance of certain symptoms indicates the exhaustion of the work force, we can gather from these symptoms the amount of work force which the heart possesses. The first evidence of heart failure is invariably a subjective one, although it may be ignored for a time. The patient's attention is drawn first to his condition by some feeling of distress in the performance of some act which he was wont to undertake without discomfort. It is the limitation of the field of cardiac response, with the interposition of the protective

mechanism, which is the first and dominant sign in all forms of heart failure, and it is by the due appreciation of the patient's sensations that the physician obtains the most reliable information about the condition of the heart's strength.

The Standard for Estimating the Heart's Strength.

The standard by which the heart's strength is measured is peculiar to the individual. The field of response to effort varies widely in different individuals with healthy hearts. Each one knows the amount of effort he can put forth without distress, and this is the only practical standard. It is the appreciation of this fact, that distress is evoked prematurely, that indicates the beginning of heart failure. The kind of distress called forth varies: breathlessness, palpitation, a sense of exhaustion, suffocation or pain, are the most common sensations experienced. By the time objective signs of heart failure have arisen, such as dropsy, laboured breathing when at rest or after slight exertion, increased rate, dilatation, the heart failure has proceeded a long way. When such objective signs persist when the body is at rest, the work force is practically expended, and the rest force is being exhausted.

Estimation of the Significance of Symptoms.

From this conception of heart failure and the manner by which symptoms of heart failure arise, we are able to set a standard by which the significance of symptoms may be estimated. The simple test is to observe how the heart responds to effort. It is manifest that if a heart be handicapped exhaustion will occur prematurely. It is necessary, therefore, that evidences of premature exhaustion should be sought for. As I have said, the standard of response is a personal one, no two healthy men responding exactly alike. It is necessary to be able to discriminate the relative strength of different individuals before applying this method of estimation, and it is in this connexion that great judgement should be exercised. If there be present in the heart some abnormal sign, as an increase in the size, a murmur, or an irregularity, but with no limitation of the field of cardiac response, it may be taken for granted that the cause of the abnormal sign has not impaired the functional efficiency of the heart muscle, and therefore that it is of little significance so far as heart failure is concerned. When there is marked restriction of the field of cardiac response, and the individual presents some abnormality, it does not necessarily follow that the cause of the abnormality is the cause of the heart failure. A careful inquiry has to be made into other circumstances, such as proper food supply, other affections of the body, overwork, worry, sleeplessness, and so forth. Many individuals suffer from extreme heart failure who never show any objective sign, the heart's action and size agreeing in every respect with our conception of what is normal. But if this method of estimating the condition of the work force be followed, symptoms of a characteristic kind will be found that will show the extent of the heart failure, and warn the physician when danger is impending.

Neglect of the Significance of the Protective Phenomena.

In putting forth this view that heart failure can be detected and that the significance of symptoms can be estimated by the observance of how the heart responds to effort, I make no pretence to originality. It was Graham Steell who pointed out to me many years ago the great significance of "muscle failure." Practically every one is willing to admit the truth of the proposition that it is the inability of the muscle to maintain an efficient circulation which is the cause of heart failure. But it is necessary to insist upon it here, for, though every one may admit it, few think it worth while to look at heart failure from this point of view. At all events, the testing of the heart's efficiency, by observing how the heart responds to effort, is never taught. If we were to seek in textbooks for a method to estimate the value of a symptom, we should find most writers so vague that one could read a large volume and rise from it with no notion of how the author would estimate the value of the simplest phenomenon. When writers do offer advice as to the estimation of the value of any symptom, they may go so far as to say that an opinion should not be based on the symptom alone, but that a decision should be given after inspection, palpation, percussion, and auscultation. That is to say, every possible means should be taken except the one of real importance. If we look further, we shall find how this very commonplace method is ignored. I have already referred to the methods in the army, where an individual is rejected merely on account of the presence of a murmur or an irregularity. Look at the questions in an insurance paper: "Are the heart sounds free from murmurs?" "Is the heart regular in its action?" Not a word as to the essential symptoms of heart failure. When a murmur or an irregularity is noted, some insurance offices have what they call a "heart form" to fill in, which is so arranged that the essential symptoms that would lead to an intelligent appreciation of the value of the abnormal symptom are practically neglected.

Inadequacy of Methods Usually Employed to Estimate the Heart's Efficiency.

There have been many attempts made to find some reliable method which could be applied to the differentiation of the value of symptoms, by estimating the integrity of the heart. Attempts have been made by counting the heart beats after a short period of violent exertion—a method which is of little use, except in rare cases, and which is full of fallacies and liable to mislead. Instrumental methods appeal so strongly to the imagination that we have attempted methods of valuation which are based entirely on a misconception of what it is they should reveal. We have elaborate blood pressure instruments, supposed to show the co-efficiency of the heart's strength in the terms of a mathematical formula. We have graphic records, and even the electrocardiograph. I am the last to decry the use of these methods, for they all have a very important sphere of usefulness, but I have little hesitation in saying that as a means of estimating the heart's integrity and capacity and elucidating the significance of symptoms they can only supply a very limited amount of information. When we reflect as to what are the essential conditions which lead to heart failure we shall at once recognize the great limitations of all methods which depend on the use of mechanical contrivances. Further, seeing that heart failure is first exhibited by a diminution of the work force of the heart, and that this is shown by a restriction of the field of effort, it will be understood how insufficient all methods are which depend on the examination of the body at rest.

The Importance of Subjective Sensations.

On the other hand, the due perception of the symptoms which arise in the early stages of heart failure, and their modification as exhaustion of the work force of the heart proceeds, furnishes evidence of such value that we can estimate not only the degree of heart failure, but the significance of any objective sign which may be found. For this purpose it is necessary that we should recognize the symptoms, and, as they are in the main subjective, their appreciation is surrounded with many difficulties. When we reflect on the enormous amount of time that has been spent in the elucidation of many of the signs revealed by physical examination, and the indifference with which subjective symptoms have been treated, we shall realize how it has come about that the estimation of the value of symptoms has been so inadequate. Many of the most significant symptoms are ignored in the examination of patients, and few are properly understood. Such a striking phenomenon as breathlessness, a symptom so prominent that neither physician nor patient can overlook it, is still so obscure that we have little knowledge of its varied forms and the mechanism of their production, and in consequence we lose the significance of each form. In like manner, the most dominant of symptoms—pain, a symptom so instructive and universal in its occurrence—has never been appreciated. Even at this day we know little of its mechanism, and because it is a subjective symptom and one which the physician cannot recognize by mechanical methods, its presence receives but the slightest consideration. The result is that this most instructive symptom is banished as a phantasy or labelled as a pseudo-angina pectoris, or exaggerated into a symptom of the most dreadful kind. I think there is nothing so futile and so misleading in clinical medicine as the usual description of pain in affections of the heart. The same neglect is shown in regard to the sensory phenomena associated with pain—for example, the hyperalgesia of the

external body wall, the sense of compression of the chest, the feeling of suffocation in the throat. These phenomena, when present singly or two or more together, are frequently the only grounds on which a safe opinion can be based. There is another series of sensations caused by the action of the heart, which would be of the greatest help if we understood them. At present the cause of many heart affections cannot be detected because certain changes in the heart's rhythm occur at infrequent times. If we but appreciated the patient's sensations we should often be able to recognize the condition that caused the distress. When opportunity is offered, it will be found that such sensations as "fluttering of the heart," the "sensation of stoppage," and the "thumping sensation" are due to very distinct and definite changes in the heart's action.

Method of Examination.

In applying this method of estimating the value of symptoms, I insist upon the patient's describing his own sensations and all attendant circumstances minutely. I carefully inquire into the manner in which an individual presenting any abnormal sign accomplishes his daily work or play. If he is young, how he comports himself during effort, as in playing some game or running a race; if he is middle-aged or elderly, how he carries out his work, and also how he may be able to undertake some effort. I try to ascertain if he can do the work and effort of a healthy man at his time of life, and if the inquiry satisfies me that he can do them, I give him a good prognosis. In doing this, I am testing the amount of work force, and if I find that even with a recognizable defect the individual does lead a healthy, untrammelled life, then I know that I have to do with an efficient heart muscle, and the defect is so slight that it does not perceptibly embarrass the heart in its work. When there is any limitation of this power, then a careful scrutiny is made into all the possible factors, such as overwork, worry, sleeplessness, and other diseases, which may induce exhaustion of the work force. If, in addition, there be any manifest lesion, then its bearing on heart failure is carefully considered to see whether its presence is merely incidental or whether it is a progressive lesion, or again whether it is stationary, but its presence has handicapped the heart in its work.

It may be as well to bring out the value of this method by showing how I have utilized it in actual practice. In the young with the functional murmurs and irregularities which I have already mentioned the individual's account of how he plays his games and reacts to effort is generally easy to ascertain. The consciousness of any distressful feeling too easily induced will be sufficient to place the physician on his guard, lest there be some actual enfeeblement present. The presence of an irregular action, as that due to an extrasystole, may cause a good deal of mental distress to the individual by his consciousness of the heart's abnormal action. Recognition of the kind of irregularity and the knowledge attained from long experience showing that it may not be in itself a sign indicative of heart failure, enables us to reassure the patient with confidence. For instance, I had referred to me a professional football player, a young athletic man of 21, who was greatly distressed by an unpleasant feeling in his heart at times. He had been examined by two doctors, who had recognized an occasional irregularity in the heart's action. He had been forbidden to exert himself, and was given digitalis and strychnine. After three weeks' rest and treatment the occurrence of the distressful feeling continued unabated. When I examined him I found his uneasy sensations were due to the occurrence of extrasystoles. In all other respects he appeared a perfectly healthy man, his response to effort being good, for he played his game vigorously up to the time he had been told to rest. In consequence of being told to cease work because of his heart's abnormal action he had become depressed and apprehensive. I endeavoured to reassure him, and suggested that all treatment should be stopped, and that he should start playing football again, and if at any time he was conscious of his heart stopping he was to pay no attention to it. He at once resumed his engagements, and completed his term with no discomfort. He told me that at the beginning of one match he was painfully conscious of his heart's irregularity, and felt that he must retire; but, reflecting upon what I had told him, he dashed into the game, and in a few minutes forgot all about his trouble, and he said that he never played a better game in his life. I may add that I have seen individuals, young and middle aged, in whom extrasystoles occurred at intervals, and have watched them for years, and have never seen any one who was restricted in his work on their account.

The same line of observation, when applied to what are usually called cases of valvular disease, will reveal features of real significance. The manner in which the individual responds to effort will be found to enable us to recognize those in whom the heart muscle has escaped damage, and those in whom the disease is gradually and surely extending, impairing the functional efficiency of the muscle, and embarrassing it in its work by interference with the flow of blood.

In searching for information in regard to the significance of murmurs, while the appreciation of how the heart responds to effort may give information as to the integrity of the heart muscle, where it has escaped damage, it requires very careful inquiry to realize the extent of the damage when the heart's efficiency is impaired. The degree of limitation of the field of cardiac response to effort must be correlated to the changes revealed in the heart by physical examination, and an estimate formed in regard to the rate of progress when the lesion is not stationary. This entails an inquiry into the history of the patient to find the date of the initial infection, and an estimate of the extent of the changes and the rate at which they have progressed from the evidence afforded by a physical examination. Thus, for instance, in mitral stenosis, the date at which the lesion began may be referred to an attack of rheumatic fever some years previously. Recognizing that mitral stenosis does not arise as an acute condition, except when due to vegetations on the valves, but is the result of a process that proceeds at a varying rate in different individuals, we can get fairly trustworthy evidence by the character of the murmur. As the narrowing of the orifice proceeds, we shall find changes occurring—first it may be a thrill, presystolic in time, then after a period, it may be of years, we find a presystolic murmur, which becomes more and more accentuated and prolonged as the narrowing goes on. The mitral orifice still becoming narrower produces a diastolic murmur, short at first, but gradually becoming lengthened, until the whole diastole is filled by murmurs. In these stages a reference back to the primary infection gives an idea of the rate of progress. Coincident changes, affecting the heart muscle, may be appreciated by noting the response to effort and changes in the size of the heart, and finally in the presence of auricular fibrillation. It will be found that in all these cases there is a distinct relation between the amount of work force and the degree of impairment of the heart's efficiency, due to the lesion in the muscle and valves.

I find this method of valuation of the greatest service also in cases of angina pectoris. If the statement which I have placed before you is accepted—that the only real test of the integrity of the heart muscle is its power to respond to effort, and that the amount of effort that can be undertaken without distress affords a basis for estimating the degree of impairment—we are at once placed in a position to obtain a fair conception of the gravity of any case of angina pectoris. Some men between 50 and 60 years of age, who are actively engaged in business, are seized with all the typical symptoms of angina pectoris. Recognizing how anxiously this condition is viewed, it is necessary to form an opinion as to the gravity of the condition. Putting aside all thoretical considerations as to the manner of the production of angina, let us consider it from a useful and practical point of view. If we look upon the sensations in angina pectoris as being in its nature a part of the protective mechanism, and the evidence of an exhausted heart muscle, however this exhaustion may have been induced, we obtain the grounds for a reasonable prognosis and a sensible line of treatment. In all people, as years advance, changes of a degenerative nature occur. So far as the heart is concerned, these may take place apart from any conspicuous lesion. On inquiry we shall find almost to a certainty that the attack of angina is not the first sign of heart exhaustion. If closely interrogated patients will invariably reveal that some time previously, even five or ten years before, they were conscious at times of sensations of a disagreeable kind on exertion, which they ignored,

continuing their work. These sensations indicated that at that time the periods of rest were not sufficient to restore the exhausted muscle, and that even then some slight changes were going on in the muscle which impaired its efficiency. With this impairment the individual still worked as hard as when in the flush and vigour of manhood. Exhaustion, in the first instance being ignored, finally becomes so extreme that it culminates in an attack of angina pectoris. If this view be acted upon, and if it be recognized that the muscle is exhausted because the periods of rest are not sufficient to restore the work force, we find out the essential cause of the suffering. It is necessary to recognize whether the conditions producing the attack are removable or permanent. A careful investigation may reveal that excessive work, worry, or sleeplessness has prevented recuperation. On the other hand, other factors may have contributed to the heart's embarrassment, such as poisoning from tobacco or alcohol. By the removal of these causes the heart may be restored to such efficiency that the individual leads a useful life at a lower level, with a prospect of attaining the allotted span. If the degenerative changes inducing the attack are more advanced, then it will be found that the recovery is partial and delayed, so that the degree of recovery is often an indication of the actual damage to the heart muscle. In other cases of angina pectoris—such, for instance, as when the attacks are readily provoked by exertion after meals—a due appreciation of the functional activity of the heart will be helpful. In some cases, when the attacks come on after a meal, the individual cannot at first walk fifty or one hundred yards without being distressed. This may be repeated a few times, and then he may be able to walk five or ten miles with no distress. This fact indicates that there is a good deal of healthy heart muscle present, and that the attacks are provoked by the introduction of an additional factor—a full stomach—which embarrasses the heart for the time being.

Auricular fibrillation is a condition that not infrequently induces an extreme amount of heart failure, which may speedily terminate in death. In such cases the exhaustion is so readily induced that no one could overlook the gravity of the condition. On the other hand, we find all degrees of limitation, some patients having little or no limitation of the field of cardiac response. The extreme irregularity in these cases is often viewed with alarm, but there are evidences present in every case which enable a proper estimate to be formed, such as the rate, the presence or absence of objective signs of heart failure. In the absence of such objective signs, the manner in which the individual responds to effort will invariably indicate how far the heart muscle is able to overcome the embarrassment induced by the irregular action, and the extent which the patient can exert himself within the limits which cause distress will afford a valuable indication as to the state of the heart muscle.

Limitations of the Method.

I do not pretend that this view of estimating the degree of heart failure is of universal application, for there are many heart affections to which it is not applicable, as in acute diseases, or when the heart is invaded by some microbe or toxin, or where the individual has been weakened from some other ailment, as the various anaemias. It is mainly applicable to chronic cases with gradual changes impairing the capacity of the organ, and it is useful in differentiating those symptoms which have a serious bearing from those with little or no significance. Further consideration may reveal its unsuitability in other ways, and may lead to its modification. Such a view as this cannot be tried and judged on theoretical grounds or by the testing of a few cases for a brief period, but must be carefully applied to a large number of individuals, and those individuals watched and examined at intervals over periods extending from twenty to thirty years.

Since this view only impressed itself upon me ten or fifteen years ago, it will be seen that I cannot have given it that thorough test which it requires. It has, however, revealed so much to me and has been of so much practical help that I feel justified in putting it forward, for the life and experience of one observer is too limited to settle a matter of this importance.

Treatment.

The conception of heart failure and the method of estimating the value of symptoms which I have attempted to describe has been of the greatest value to me in treating patients with heart affections, and in elucidating the action of remedies in a research which I have been carrying on for some time. Pursuing my work until lately amongst individuals most of whom were actively engaged in manual labour, the subject of treatment was all important, as they would not desist from work unless actually compelled by force of circumstances. I therefore saw many people whom on theoretical grounds I considered unfit for work who continued their work in spite of warnings, and were little the worse. This caused me to look more carefully into the circumstances of each case, to find out why, for instance, hearts damaged by old rheumatic lesions were capable of so much work, and when I came to appreciate the reason there was also placed in my hands a reasonable line to follow in managing such cases during their temporary attacks of heart failure. Recognizing that the exhaustion of the heart was due to an insufficient period of rest, a full inquiry into all the patient's circumstances frequently led to the recognition of many events in the daily life which by modification would save the heart much exertion, while the business or work of the individual could still be continued.

From this arose the first and most important indication—namely, that an individual affected by a heart lesion which diminishes his work force must live within the limits of his powers. This can only be done by the period of rest being sufficient to restore the exhaustion of the work force. In this way alone will heart failure be avoided, and a reasonable prospect of longevity be attained.

Treatment need not be given in the presence of any abnormal conditions unless there is distinct evidence of heart exhaustion. Where there is such evidence, then the treatment in the first place must consider the possibility of diminishing the amount of daily effort.

From the point of view that heart failure arises because the period of work is so great that the period of rest cannot restore a sufficient amount of work force, the essential principle of treatment becomes self evident—namely, rest. Though the beneficial effects of rest are invariably acknowledged they are far from being sufficiently appreciated. When we scrutinize any system of treatment, it will be found that the success of the treatment depends entirely upon the amount of rest the heart has procured. It seems probable that drugs which have such a potent and beneficial effect upon the heart as those of the digitalis group owe their good effect mainly to the amount of rest procured by the slowing of the heart's rate. At all events, in the researches I have been carrying on for some years, the cases which have obtained the greatest benefit from the digitalis were those in which the heart's rate was decreased by the digitalis. I have repeatedly seen relapse of patients coincide with an increase in the pulse-rate when the digitalis was diminished or left off. The vast majority of patients in whom digitalis acts with such marvellous effect in slowing the rate and improving the condition are those affected by auricular fibrillation. The reason that digitalis has acquired such a reputation as a cardiac drug is due to the peculiar susceptibility of patients with auricular fibrillation, and practically all recorded cases illustrating the remarkable effects of digitalis are cases of auricular fibrillation. Hearts with the normal rhythm are seldom so sensitive to the digitalis, and in them there is not the same tendency to slowing of the rate.

While in all successful systems of treatment rest is always prescribed, its good results are not always recognized, because at the same time some special agent is employed, such as a drug, a bath, or an exercise, and the good results are attributed to the special agent. It is for this reason that the therapy of the heart affections is loaded by such an array of therapeutical measures, the vast majority of which have little or no effect on the heart. Many of these agents are not only given when rest has also been prescribed, but they are given when there is no heart failure, and only because the physician has detected some anomalous symptom. It is a matter of everyday experience to find individuals with a murmur or an irregularity, who for years have been subjected to treatment and

made to visit health resorts, for a condition which neither indicates heart failure in the present nor its likelihood in the future. The fact that heart failure did not arise has probably been attributed to the precautionary measures. From this comes the belief in the efficacy of many of the drugs and methods in use to-day. When many of these vaunted remedies are carefully investigated, their uselessness becomes evident. Take, for instance, the present-day belief in the efficacy of strychnine on the heart, a belief held not only by a great many physicians, but which exercises an almost superstitious regard in the mind of many of our surgical brethren, in whom the belief is so deeply rooted that they will not undertake an operation without the preliminary ceremonial rite of a hypodermic injection of strychnine. I have sought in vain for the slightest evidence of the effect of medicinal doses of strychnine upon the heart, and have searched the literature on the subject and have not found one single reliable instance demonstrating the effects of medicinal doses. Pharmacologists have repeatedly examined with the minutest care the effects of medicinal doses of strychnine upon the heart in experiment, and have failed to obtain a result of any kind. So it is with a great many other drugs and methods, with the unfortunate result that the effects of drugs that are really of service are never properly appreciated.

We might not care so much for these erroneous beliefs were it not that they blind the profession to the great want of suitable agents in treating real and serious affections of the heart. There are many conditions in which rest alone fails to benefit the heart, as when the heart is invaded by a toxin, or rendered irritable from some lesion in the heart itself, or when the ventricle in heart-block contracts so seldom as to endanger life. For these and many other conditions we are absolutely without any means of meeting the impending and actual danger, and yet we are kept in ignorance of this fact because writers pour forth a stream of remedies for any and every kind of heart trouble. Were we more alive to our own limitations we should be more industrious in the search for real and valuable remedies.

THE SURGICAL TREATMENT OF CHRONIC COLITIS.*

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CHRONIC colitis, like many other clinical terms, includes different conditions under a single heading. There is a colitis due to simple irritation of the bowel, a colitis due to protozoal infection, and another form due to bacteria. The surgeon, however, has no need of an elaborate classification, for he is called upon to treat only two classes of cases: those in which a cause can be found, and those where the patient is suffering from toxaemia due to the absorption of septic products from an ulcerating bowel, the cause of the ulceration being unknown.

The two conditions are liable to be mistaken in the early stages, and it is important, therefore, to make a thorough and methodical examination as soon as possible. A correct diagnosis cannot usually be arrived at in the out-patient room of a hospital or in the consulting room of the surgeon. The patient should, therefore, be kept in bed a day or two before any examination is made, and should be placed in charge of a competent nurse. The bowels should be emptied and cleansed by simple enemata and by irrigation with unirritating lotions. When this has been done thoroughly, digital examination, followed by the careful use of a sigmoidoscope, will often reveal a cause if the inflammation is limited to the rectum or the lower part of the sigmoid flexure. Abdominal palpation may give a clue when the cause is situated in the colon at a greater distance from the anus. Such a local examination will show that some cases of chronic inflammation of the bowel are due to gross causes. The colon may be irritated by the long-continued presence of scybala which have become packed away in the sacculi of the intestine, leaving the lumen free. The patient thus has a daily action of the bowels in spite of the impaction of faeces, and the cause is only recognized when the irrigation brings away masses of foul-smelling faeces, and the irritation subsides. Local irritation, too, may be due to the presence of a polypus or of an unsuspected cancer of the rectum; more rarely it may be due to actinomycosis, to glanders, to tubercle, to some strain of pneumococcus, to gonorrhoea, or even to syphilis. I have also seen it in a few cases of pericolitis where an abscess, formed outside the bowel, has afterwards burst into its lumen.

When these causes have been eliminated there remains a large class of cases which are grouped under the comprehensive heading of "ulcerative colitis," although there is no doubt that several subclasses of the disease exist. In these cases the large intestine may be ulcerated locally, or the inflammation may extend throughout its whole extent. The lesion is chronic, destructive and generally extensive. It rarely leads to perforation of the bowel; it is hardly ever associated with abscess of the liver; it kills by toxaemia. It occurs equally in men and in women, and although it occurs in epidemics, it is usually sporadic, as we see it in private and in hospital practice. The number of cases, I think, is increasing, but this may perhaps be due to the fact that I have been interested in the subject, and more cases therefore have been sent to me.

Local examination of a case of ulcerative colitis reveals no gross cause, and the inflammation requires for its investigation all the resources of modern bacteriology, and even then the pathologist may have to confess that he is without any clue to its nature.

During the last three years I have had ten cases of ulcerative colitis under my care, two of whom died. Here in brief is the record of a case, for the notes of which I am indebted to Dr. Ogier Ward, who was fortunate enough to have followed it from beginning to end:

A gentleman aged 30 first came under observation on October 5th, 1904, suffering from constipation. He said that his bowels had always been obstinate, but that they had become worse lately. Diet and the use of glycerine enemata relieved him until June 9th, 1905, when he returned complaining that for the last three weeks his bowels had again become irregular, and that he had seen blood in his stools. Examination showed that he was suffering from a fissure of the anus. The fissure was touched with caustic, and a week later the patient reported that he had not seen any more blood, but he was found to have four ulcers extending radially from the margin of the anus. Simple treatment caused the ulcers to heal, and the patient remained well until August 20th, 1906, when he applied for the relief of a pustular eruption on his hands which he thought he had contracted in the pursuit of his occupation as a buyer of furs. Rectal examination showed that he had a tiny fissure of the skin in the immediate neighbourhood of the anus.

He did not present himself again until March 10th, 1910, when an examination showed that the fissures were still present. There was no pain when the bowels were relieved, but blood spattered the pan of the closet. His bowels were very irregular, and the patient complained that when he had emptied them after breakfast it was often necessary for him to do so again within twenty minutes, the second motion being solid or liquid. He had slept well until the last week, when his sleep had been disturbed by the necessity of getting up to relieve his bowels. For instance, on the previous night he had a good stool at 2 a.m., but at 3 a.m. he was obliged to rise again to pass some watery stuff. He had lost his appetite and so much of his former vigour that he was unable to continue his business. It was noted that his teeth were very foul, and rectal examination showed that he had two small piles. On March 2nd the patient had passed blood and mucus three or four times by the bowel, and there was some spasm of the anus. The pulse was 105 and the temperature 99° F. On April 7th a well-marked fissure of the anus had formed, and there was some eversion of the margin, as though the external sphincter had lost its tone. The gums and mouth were in a much more healthy condition, and the patient was able to use a toothbrush. On April 18th the patient wrote complaining of "rheumatism" on the right side, and when he was seen on April 25th it was obvious that he was extremely ill. His pulse was 120, his temperature was 103.3° F., and he had had a rigor. He passed his motions frequently, the stools being crumbling and containing blood and mucus. The right wrist was swollen and red, and there was pain along the right sartorius muscle.

I saw him on April 28th, and found that he was passing stools containing blood clots and that he had a chronic ulceration extending from the margin of the anus upwards into the bowel. On May 11th he was seen by Dr. Hale White, who recommended that an appendicostomy should be done to ensure a better irrigation of the bowel, as it was clear that he was suffering from ulcerative colitis associated with profound toxaemia. This operation I performed on May 12th, and the bowel was washed out, whilst the patient was still under the anaesthetic, with three pints of hot saline solution. This was repeated daily, and the report states that on May 15th there was no longer any blood, pus, or mucus. The patient remained very ill, however, and he was given a vaccine prepared from his own pus. The

* Remarks introductory to a discussion on chronic colitis at the Harveian Society of London (see p. 874).

quantity varied from 5 to 10 millions, and the injections were made on May 15th, May 18th, May 24th, May 31st, and June 7th.

A little pus and blood appeared from time to time in the discharge from the bowel, which never became so offensive as it was before the appendicostomy. The temperature, which had oscillated widely between 102° F. and 98° F., began to show smaller excursions about the beginning of June, and there was no rigor after the operation. The patient left the nursing home on August 15th, but it was not until September 13th that he was able to be carried out into his garden, nor until the middle of November that he could stand without support. He then began to increase in weight steadily from 6 st. 4 lb. on October 23rd to 8 st. 4½ lb. on December 19th. By this time the swelling of his wrists had subsided. On January 11th, 1911, his weight had increased to 8 st. 9 lb., but he had experienced a slight relapse, as his wrists had again become puffy, and there was a return of the discharge from the bowel. The note adds that the patient had suffered similar relapses on previous occasions, and that they seemed to follow a few days after any extra effort or mental excitement.

The history of this case is singularly complete, because Dr. Ogier Ward was able to follow it from its very beginning to convalescence. It shows several of the features which I have found to be common in ulcerative colitis. A gradual onset, marked by a weakness of the rectal mucous membrane, followed by chronic irritation, leading to increased secretion of mucus, and by a desire to go to stool. The irritation passes on slowly to ulceration, marked by the appearance of blood, pus, and offensive stools. Absorption of these inflammatory products produces a state of profound toxaemia, from which the patient may be unable to recover.

The actual cause of the ulceration is unknown, although in several of my cases it has followed parturition, piles, fistula, and fissure. The diagnosis in the later stages is easy, but I find that the medical practitioner is apt to think more lightly of the condition than is warranted by the severity of the disease. The ulceration begins insidiously and with so little pain that the patient only thinks of it as an attack of diarrhoea lasting longer than usual. The patient feels ill, it is true, but the languor is attributed, naturally enough, to the disturbance of the bowels. Even in advanced cases when the onset has been rapid the facial expression is no guide to the local condition, and the friends, therefore, do not become alarmed. This was well exemplified in one of my hospital cases, when it occurred to some of my dressers to ask whether the patient was not a phenomenally lazy person who was making the most of an attack of diarrhoea lasting longer than usual. I asked whether it was our custom to take cases of diarrhoea into a surgical ward. I showed them the patulous anus from which a foul-smelling mucus issued almost continuously, and a few weeks later they were able to see the ulcerated mucous membrane of the colon at the *post mortem* examination.

As a result of this failure to appreciate the severity of the disease it often happens that milder remedies are employed long after the time when they should have been abandoned. Castor oil and irrigation of the rectum by means of a Higginson's syringe are excellent methods of treatment at first, but more heroic means must be adopted if the conditions do not improve quickly. Foremost amongst these comes vaccine-therapy, the vaccine being made from the particular strain of micro-organism which is causing the inflammation. Death from toxaemia is the great danger of the disease, and if the patient is to be rendered immune the earlier the process is begun the more likely are the results to be satisfactory. It is advisable, therefore, to call in the bacteriologist as soon as possible. The surgeon may have to follow. It is clear to most of us that the large intestine cannot be cleansed in its whole extent by simple irrigation from the anus. It is also known from *post-mortem* examinations in only too many cases of ulcerative colitis that any part or even the whole of the large intestine may be ulcerated. The products of the ulceration are very abundant, and their absorption is one of the most serious dangers of the disease. It is important, therefore, to cleanse the bowel and to keep it free from putrefying products. Drainage through the appendix enables this to be done in the most satisfactory manner. The operation of appendicostomy is not so serious as that required for removal of the appendix during the quiet stage. It is very effective, and the fistula can afterwards be closed without trouble; indeed, in some of my cases the difficulty has been to prevent spontaneous closure. On the other hand, it must be clearly understood that appendicostomy will not cure ulcerative colitis, and the friends of the patient should have this clearly explained to them at the time of the operation, or they will be disappointed. The object of the operation is to keep the bowel clean and to prevent the absorption of toxic products. The ulcerative process continues until the patient becomes immune either by a natural process or by artificial means. Appendicostomy, therefore, prolongs the life of the patient, and thus gives him a better opportunity to be cured. In the cases which have come under my own observation the first effect of appendicostomy has been a material improvement in the condition of the patient, even in the most advanced cases. The temperature falls, the appetite returns, and may remain good permanently. The improvement in the general condition, however, is not maintained in its full extent, and a relapse occurs after a week or two. These relapses are a cause of great anxiety, but, so far as I have seen them, they have only been temporary, and the net result of the operation has been a slow but interrupted progress to recovery after months of illness.

I have tried many different drugs as local applications in these difficult cases of ulcerative colitis. Carbolic acid in all its forms, and however disguised, has caused carboluria so often that I have ceased to use it. Bismuth salicylate, perchloride of mercury, biniodide of mercury, and boric acid caused irritation in the earlier stages and were discontinued. Bismuth carbonate (15 grains to 1 pint), potassium permanganate (1 in 30,000), and allmatein, which is haematoxylon acted on by formaldehyde (40 grains to 1 pint), proved most useful, and were soothing. In the later stages of the disease irrigation with perchloride of mercury (1 in 20,000), zinc sulphate (4 drachms to 3 pints), and silver nitrate in the strength of 5 to 10 grains to the pint of sterilized water gave the best results when they were used alternately. Ionized irrigations were employed on several occasions, but I could not satisfy myself that they were followed by any marked improvement. Chlorodyne was always useful when an anodyne was required, and it never seemed to lose its effect.

THE USE OF VACCINES IN ACUTE MASTITIS.

BY

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A CONSIDERABLE amount of work has been carried out on the etiology of acute mastitis, but, with the exception of a few isolated cases, little seems to have been done to apply the knowledge so gained by resorting to specific therapy. The cause of this cannot be that acute mastitis is always of short duration, with rapid recovery. A visit to any large out-patient department will show cases of chronic sinuses of breast which obstinately refuse to close up, and remain discharging for months and even years. By a timely use of vaccines in the more acute stages these chronic cases might be prevented from occurring. It is not suggested that inoculation treatment can replace surgery. For reasons I shall give later, it is seldom this most desirable end can be attained. Knowing, however, the specific nature of the disease, it is only rational that we should attempt to increase the resistance of the patient against the particular organism invading the tissues.

BACTERIOLOGY AND MODE OF INFECTION.

The infective nature of this condition being an established fact, it remains to discuss the nature of the organisms and their mode of entrance into the breast. These two matters are of fundamental importance in the question of treatment of vaccines.

From an examination of the pus it has been found that almost any of the common pathogenic bacteria may be present. In a very large proportion of cases, however, *Staphylococcus aureus* is obtained in pure culture. In a much smaller number of cases streptococci have been found, either together with *Staphylococcus aureus* or, more rarely, in pure culture. *Staphylococcus albus* is

occasionally found, generally in conjunction with *Staphylococcus aureus*. These three organisms practically constitute the bacteriology of the ordinary acute mammary abscess.

INFECTION BY THE BLOOD STREAM.

Bacteria may enter the breast from within by the blood stream, or from without. There is evidence to show that bacteria from the blood may be excreted in the milk from an apparently perfectly sound breast.[1] It has, however, been shown that the organisms obtained from the milk are rarely the same as those present in the blood in cases of puerperal fever.[2] Streptococci are rarely to be found in the milk, whereas staphylococci are frequently present in the sound breasts of both feverish and healthy women.[3] Moreover, it is rare to find an acute mastitis occurring in a woman suffering from puerperal fever, although I think this fact may possibly be explained, inasmuch as the secretion of milk in these cases very quickly ceases, and there is then no nidus in which the bacteria can multiply. Thus, although metastatic abscesses may occur they are very rare, and septicaemia as a cause of the ordinary mammary abscess may be practically disregarded.

EXTERNAL INFECTION.

By the external route infection is possible in two ways: (*a*) Through cracks and fissures of the nipples; (*b*) through the milk ducts themselves where no nipple lesion exists. Each of these ways is claimed by different authors to be the sole route of infection. Doubtless the truth lies between these two extremes.

It must be generally admitted that lesions of the nipple are not always, or even usually, to be found in cases of mastitis; at any rate, on macroscopical examination H. Ehrlich[4] in a study of 84 cases found nipple cracks only in 24 per cent. In my own cases they were only found twice in 25 consecutive cases of abscess.

Kehrer calculated that mastitis occurs in 25 per cent. of cases of cracked nipple.[5]

Much light is thrown on the occurrence of infection through a lesion of the nipple by a comparison of the bacterial contents of the cracks themselves with those of the associated abscess, and also with the bacteria of those abscesses which apparently are not associated with a nipple lesion. In a recent monograph by Schalk[6] the bacterial content of 22 cases of cracked nipple was examined; 14 of these cases showed the presence of *Staphylococcus aureus* in conjunction with streptococcus, while 8 showed *Staphylococcus aureus* alone. In 3 cases suppuration of the mamma occurred, and the bacteria of the abscess were identical with those found in the cracks—that is, in two cases *Staphylococcus aureus* and streptococcus together, and in the third case a pure culture of staphylococcus. In my own two cases with cracked nipple streptococcus was present in both cases in both cracks and abscess pus; in one case it was associated with *Staphylococcus aureus*. In a third case, in which a well-marked fissure had been present but had healed, a pure culture of streptococcus was obtained from the abscess pus. On the other hand, in 12 consecutive cases of my series in which no nipple lesion was present macroscopically, the abscess pus gave a pure culture of *Staphylococcus aureus*. Although infection may undoubtedly occur through a lesion of the nipple, it has been pointed out that pus pouring from a fissure is very likely to infect the adjacent ducts.

ANATOMICAL EVIDENCE.

Where infection through fissures occurs the organisms pass by the lymphatics into the substance of the breast. In these cases suppuration commences in the connective tissues, while the glandular element proper at first plays a passive part. On the contrary, inflammation beginning in the ducts and acini spreads outwards from the glandular into the interstitial tissues. Both of these conditions have been described from histological preparations of cases of mastitis. The bulk of the cases from which morbid material is obtainable are in the later stages, and, as a rule, it is impossible to say exactly where the inflammation has commenced.

Billroth[7] described a pure interstitial mastitis with the bacteria lying in the lymphatics of the connective tissues leaving the glandular elements untouched; whilst Bumm,[8] whose work on mastitis is well known, described the conditions present in an early mastitis of glandular origin. He found the smaller ducts and acini choked with milk clot and bacteria; the epithelium had been shed, and leucocytes were migrating through the basement membrane into the focus of infection. The infecting bacteria were likewise passing from the acini into the surrounding connective tissues.

CLINICAL EVIDENCE.

Clinically it is usually possible to distinguish in their earlier stages two types of mastitis; their onset bears evidence of a different mode of infection.

There are cases in which the inflammation is obviously of the nature of a diffuse cellulitis—a firm uniform swelling forms, usually limited to one part of the gland, and frequently goes on to suppuration. In these cases there is generally no obstruction of the milk flow (even in the affected area) in the earliest stages.

By far the more common kind of case, however, begins as a lobular mastitis, mostly as a sequel to the sudden cessation of suckling. The milk becomes clotted in the distended breast, and there is some pain and rise of temperature. Resolution usually takes place, and the condition rarely goes on to suppuration. A lesion of the nipple is seldom found to account for this. How far the condition is of bacterial origin is not certain, but if the clots from such an obstructed breast are examined they are usually found to contain numerous bacteria, nearly always staphylococci.

PROCESS OF INFECTION.

The course of events would appear to be as follows: When suckling ceases the bacteria present, mostly staphylococci, flourish in the stagnant milk, and clotting ensues. The irritation caused by the milk clot and bacterial toxins leads to invasion by leucocytes; these probably digest the milk clot, and, if possible, take up the bacteria also. We know, however, that opsonin is essential for phagocytosis of bacteria to take place. The presence of opsonin in small quantities has been shown in milk, and it has also been demonstrated that, like other bacterial antibodies, it varies in amount in direct proportion to that present in the blood.[9 10] The main point at issue is whether there is sufficient opsonin present to allow the bacteria to be taken up by the leucocytes, or whether they will be able to flourish unhindered and lead to abscess formation.

SOURCE OF THE INFECTING ORGANISM.

As to the immediate source of the infecting organism, Koestlin[11] found *Staphylococcus albus* on the nipple and areola in 297 consecutive cases.

Cohn and Neumann[8] have shown that *Staphylococcus albus* and *Staphylococcus aureus* are the most frequent bacteria to be found in the milk from normal breasts, but they are few in number. In the intervals between suckling, however, the bacteria multiply to a considerable extent, especially if these periods are prolonged. In the milk from obstructed breasts they found these organisms present in great abundance. These observers also found that most bacteria were to be found in the sample of milk first drawn—that is, that lying nearest the nipple. Schalk[6] has recently shown that organisms similar to those found in the nipple cracks and associated abscesses are also to be found in the child's mouth and in the maternal vagina at birth. He traces infection through these channels.

CONCLUSIONS AS TO THE ETIOLOGY AND PATHOLOGY.

It would be well to state these conclusions before proceeding to the subject of treatment.

There are two organisms which are the cause of almost all the cases of acute mastitis. They are the *Staphylococcus aureus* and the streptococcus of one variety or another.

I. The *Staphylococcus aureus* is by far the more common. It usually enters by the ducts, causing clotting of the milk and obstruction; it then multiplies in the acini. The condition begins as a lobular mastitis, and subsequently the surrounding tissues may be involved with suppuration.

II. The streptococcal form of infection occurs through a lesion of the nipple; it spreads by the lymphatics and involves the interglandular cellular tissues without at first causing obstruction of the milk.

TREATMENT.

I.

Taking first that class of case in which direct infection from a nipple lesion has occurred, the course from an inoculation point of view is quite clear.

The infecting organism—probably a streptococcus, or streptococcus and *Staphylococcus aureus* together—can be cultured from the nipple crack and a vaccine prepared.

In the substance of the breast the invading bacteria are lying in the lymphatic vessels and connective tissues of a part which is thoroughly well flushed with the body fluids. They are thus quickly influenced by any alteration in the content of opsonin or other antibodies carried in the blood and lymph streams. These cases, then, will be favourably influenced by judicious vaccine treatment. Suppuration may be prevented, and the whole condition clear up rapidly. I have had two such cases clear up on prompt vaccine treatment when suppuration seemed inevitable.

II.

The other class of case—that is, that in which no external lesion can be found to account for the infection—comprises the great bulk of all cases. We may consider the possibilities of treatment under three headings and see what data we have to guide us.

Prophylactic Treatment.

The data we have here are as follow: Bacteria are able to enter the ducts and acini from outside—probably being derived from the mouth of the sucking child. These bacteria grow readily in the stagnant milk. Leucocytes enter the gland acini in response to the bacterial toxins. The leucocytes cannot act as phagocytes to the bacteria until the latter have been acted on by opsonin. There is only a small amount of opsonin in milk normally, but it increases *pari passu* with that in the blood. The resistance of puerperal women to pyogenic cocci, as measured by the opsonic index, is lowered.[12] Under these circumstances the ideal treatment would be as follows: When suckling is to cease an injection of *Staphylococcus aureus*—the usual organism of duct infections—should be administered. This will cause an increase of resistance to this organism in the body generally, and will likewise increase the amount of opsonin present in the milk. The breast should be aseptically exhausted once or twice and further contamination carefully prevented. Such counsels of perfection are not likely to be widely practised yet awhile, although somewhat similar methods of treatment have been advocated and carried out in Germany; but they none the less remain the logical sequence of the data cited above.

Treatment of Early Cases of Inflammation.

Here we are dealing with a condition in which the bacteria have multiplied to a considerable extent, the ducts are obstructed by clotted milk, and large numbers of leucocytes have invaded the infected region. The question at issue is whether the leucocytes will be killed and transformed into pus and the bacteria spread through into the surrounding tissues, or whether there is enough opsonin present for phagocytosis to be carried out and suppuration prevented.

We are at some loss to offer effective assistance with vaccines here. We may be able to obtain a culture of the infecting bacteria from the ducts; or by the use of a stock vaccine of *Staphylococcus aureus* we can materially increase the resistance of the body against this organism. This, however, is not the whole or even the chief part of the difficulty. The anatomical conditions present are to a large extent opposed to the success of vaccine-therapy in the earlier stages of infection in these cases. The bacteria are multiplying inside the ducts and acini, shut off from direct action of the body fluids by a well-marked basement membrane. They are, strictly speaking, outside of the body altogether. I was somewhat chagrined at first to find that attempts at abortive treatment by vaccines in these cases seemed invariably to fail; but, looked at in this light, it would be surprising if they should succeed.

The condition present is precisely analogous to that obtaining in cases of sycosis and acne; here the bacteria are ensconced in hair follicles or sebaceous or sweat glands, in which they multiply. Occasionally they break into the surrounding tissues, causing pustulation. The acute outbreak is easily cleared up by vaccine-therapy, but the cure of the basal infection is quite a different story.

These, then, are the conditions with which we are confronted. What are the indications for treatment? It is an open question among persons of experience whether simple bandaging or fomentations should be used. In other words, whether complete rest of the part is to be aimed at, or whether immigration of leucocytes, and, as far as possible, interchange of body fluids should be encouraged. One thing, however, remains clear—that the resistance of the body to the infecting organism should be raised as much as possible in case suppuration should occur. If this can be effected suppuration is kept within very small limits, and when the pus has been evacuated healing is rapid.

Only three cases of this class in my series came for treatment before suppuration had set in; these received injections of *Staphylococcus aureus* in doses of 400 or 500 million with the good results just mentioned above. The bacteriological diagnosis was confirmed in two of these cases when the pus was evacuated.

It may be mentioned here that the administration of vaccines to suckling women did not appear, in any case, to injuriously affect the child.

Treatment After Suppuration has Commenced.

I need not go into the question of operation; pus being present, must be let out as speedily and as thoroughly as possible, and adequate drainage provided. This is as much a canon of inoculation as of surgical treatment.

We are dealing with an area in which the bacteria have gained the upper hand over the leucocytes, and necrosis of the tissues has resulted. The localization of an abscess depends on the resistance of the surrounding tissues to the attacking organism, and this in turn depends mainly on the richness (in bacterial antibodies) of the blood and lymph stream supplying the part. When necrosis has occurred the readiest way to secure a thorough flushing of the parts with these fluids is by providing free drainage. At the same time we must increase the potency of the antibodies in the fluids we are applying to the injured area.

Fifteen cases of my series come under this heading. They were mostly sent for treatment immediately after operation. The routine treatment was as follows: There being no sign or history of a lesion of the nipple, a staphylococcal infection was diagnosed, and an injection of 400 to 800 million of a stock vaccine of *Staphylococcus aureus* was given, usually in the upper arm. Films of pus from the wound were made and the wound cultured, so that the bacteriological diagnosis might be confirmed on the following day. In cases that did well one further injection of a similar amount was given about a week later, and this was usually all that was required. Opsonic indices were not done, but if a case ceased to do well the wound was recultured and usually showed that a secondary infection had occurred. Those cases which had not been sufficiently freely opened at the outset did badly until surgical means were again resorted to, for it appears that where pus is pocketed the condition is only aggravated by the administration of vaccines. Every one of these 15 cases gave a pure culture of *Staphylococcus aureus* in the first instance.

The results of treatment were as follow: Five cases ceased to attend soon after the first injection; 1 case became secondarily infected with streptococcus, and healing was delayed for ten weeks; 9 cases were discharged healed in an average of twenty days each.

Chronic Suppurating Sinuses of the Breast.

In addition to these cases of acute mammary abscess, 13 cases of old-standing sinuses were treated; these were the result of past operations or spontaneous bursting of an abscess.

The bacteriological findings were as follow: *Staphylococcus aureus* was present 13 times—8 times in pure culture, once together with diphtheroid bacilli, and 4 times together with streptococci; 1 case gave a pure culture of streptococcus.

In treatment stock vaccines were used in staphylococcal cases, and autogenous vaccines were made where streptococcus was present. The streptococcal cases were more protracted and the vaccines not so well borne;

the difficulty in these chronic cases is frequently largely due to the presence of much scar tissue. This apparently is particularly abundant in streptococcal infections. By its contraction the fibrotic tissue interferes with the local blood and lymph supply, with the result that the contained antibodies, however abundant they may be, cannot come into contact with the infecting bacteria. The local treatment of these chronic sinuses consisted, as a rule, in the use of gauze drains soaked in hypertonic citrated salt solution, as recommended by Sir Almroth Wright.

The value of vaccines in cases of chronic suppuration is too well known to need much comment, and the results of treatment in these cases may be briefly summarized thus:

Taking an average, the time that suppuration had been going on in these 13 cases was fourteen weeks each, and they were discharged cured in an average time of five and a half weeks each from the commencement of vaccine treatment.

In one case there had been recurrent abscesses for fourteen months, and the breast was a mass of fibrotic tissue—a pure culture of streptococcus was present in this case, and cure was only complete after six months' treatment.

In another case sinuses had been present for eight months, and the patient was discharged cured in five and a half weeks.

In two other cases of six months' duration cure was complete, in one case in two and a half weeks and in the other in five weeks.

These numbers are exclusive of one case, in which treatment was discontinued. No improvement whatever was effected by several months' use of autogenous vaccines. This was a case of streptococcal infection, and the breast was riddled with sinuses. Drastic surgical measures were finally resorted to and a cure is now (November, 1910) almost complete.

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ERYTHEMA NODOSUM FOLLOWING MEASLES.

BY

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DURING the epidemic of measles which has been prevalent in Lewes since last November, I found 2 cases of erythema nodosum which occurred during the convalescent period. At the same time Dr. G. Birch found 7 cases, also following measles, as to which he kindly gave me information. Unfortunately no notes were made at the time of six of these, so no detailed account of them can be given. In most of the cases about ten to fourteen days had elapsed since the first onset of measles before the erythema nodosum made its appearance. In half the cases the first symptom was pain in the joints, followed by the erythema in about twenty-four hours. There was no history of rheumatism or contact with rheumatic fever in any of the cases, and no rheumatic or cardiac lesions were found in any of the patients. The question of sore throat before or at the time of the measles rash was carefully gone into, but it was present in one case only.

CASE I.

G. H., aged 8 years. No previous illnesses. On December 2nd a typical measles rash appeared, which was well marked in twenty-four hours; temperature 105°; a sharp barking cough, and bleeding of the gums; no sore throat; temperature normal in three days. On December 9th the patient got up, feeling very well. On the 13th he complained of pains in the shoulders and knees, followed in twenty-four hours by well-marked erythema nodosum on the shins, which disappeared quickly with salicylates and rest in bed. He was quite well two months later.

CASE II.

D. H., aged 6 years. A delicate girl, no rheumatic history. On February 1st a measles rash appeared. The temperature at night was 105°, and was normal in twenty-four hours. The throat was very much injected and painful, accompanied by an irritating cough. There was no bleeding of the gums, and the rash was never well marked. Patient was making a good recovery until the 16th, when pains in the joints were complained of, followed in thirty-six hours by erythema nodosum on both shins, which was very painful. The rash and joint pain yielded readily to salicylates.

CASE III.

J. W., aged 8 years, a weakly boy, often having attacks of tonsillitis or bronchitis. On December 12th the measles rash appeared; temperature 103°; no sore throat but an irritable cough; the rash was never profuse. He was up again in five days, and did well till the 24th, when he complained of pains in the ankles and knees, followed in eighteen hours by the erythema on the shins, outer side of the thighs, and the back of both arms. Salicylates quickly cured the condition.

As far as I know no other cases of erythema nodosum have occurred in the sphere from which these cases have been collected. Seven of the cases occurred among the poorer class attending the hospital, and two were private patients in fairly good circumstances. These 9 cases have been collected from 300 cases of measles, but many other cases of measles have occurred in the town of which no account has been obtained.

A CASE ILLUSTRATING THE VALUE OF SURGICAL TREATMENT OF PULMONARY CAVITIES.

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ON May 4th, 1889, I reported in the JOURNAL, p. 994, a case of pulmonary cavity treated surgically with success, and, although cases of empyema have occurred by the score in my practice in the interval, I have found but one other case beside this now reported in which opening a pulmonary cavity and treating it surgically seemed indicated.

That it is useful and fairly safe in non-tuberculous cases where the cavities are but few in number seems established, and the following case is an illustration of its application:

P. T., aged 16 years, was brought to the Devon and Exeter Hospital from a cottage hospital in North Devon, where he had been for six months. Beyond that he had been very ill and feverish, no definite history could be obtained. He arrived here on August 6th, 1910, complaining of cough and pain in the right side of chest. He appeared ill—eyes bright, cheeks flushed, temperature 104.2°, pulse 136, respirations 36. He stated that he was getting better until the week prior to his admission, when the cough came on with fever.

The report on the condition of his chest was that there was dullness over the lower two-thirds of the right side of his chest, and posteriorly, with moist gurgling sounds. Whilst being examined the lad complained of wanting to expectorate, and immediately coughed up a large amount of pus.

This expectoration continued daily for several weeks, and was noted as being extremely offensive. At this time he filled the ordinary spittoon twice or three times a day, and he must have got rid of 6 or 8 ounces of muco-purulent material every twenty-four hours. His breath was very objectionable also. His temperature ranged from 101° to 97°, rising to 103° on August 22nd, but falling to normal the same evening. The dullness behind now seemed lower down, whilst rhonchi could be heard over the right apex. Moist sounds could be heard at the right base. He was losing flesh. It was thought that probably the condition was a chronic form of catarrhal pneumonia, and that possibly a local empyema had occurred, and he was transferred to the surgical wards.

On first seeing the case it occurred to me that the symptoms would be accounted for if he were expectorating an empyema through the lung. After waiting a reasonable time I concluded that an operation, consisting of the removal of several of the ribs and opening and draining the pleuron, would give him most relief. I operated on September 18th, and on coming down on the pleuron it was obvious no empyema existed. Introducing the finger I found a few adhesions, but on palpating the lung no hardness betrayed the whereabouts of a bronchiectasis. About an inch of the fourth, fifth, and sixth ribs was excised.

I hoped that one result of this operation might be adhesions between the lung and the parietes, for one great difficulty in treating these cases surgically is the withdrawing of the lung from the wound, from air entering in the pleural cavity. The wound was therefore stitched up, and shortly healed. The effect of this operation was not very marked, although it cleared up the diagnosis. Yet the offensive expectoration occurred regularly, and the lad became blue and strangled

from the thin purulent material becoming sucked down the bronchi of the other lung. This was also a very alarming condition during each of his operations, oxygen being used on two occasions.

On October 29th I reopened his chest, but anteriorly, for his moist sounds and bronchophony were best heard at about the interval between the fourth and fifth ribs on the right side, very near the nipple. On this occasion I succeeded in introducing the aspirating needle into the pulmonary cavity. This opening I enlarged with Lister's long sinus forceps, but, owing to the retraction of the lung, I was unable to drain it as I wished with an india-rubber tube. A tube was kept in the pleuron in the direction of the cavity in the lung, and the air allowed to enter with each inspiration, for it was argued that by causing collapse of the lung the pulmonic cavity would be considerably decreased in size, whilst adhesions would occur between the lung and the anterior parietes. No marked benefit followed this operation, and the amount of expectoration was not materially lessened or otherwise altered, whilst the range of temperature was from 99° to 102°.

On November 19th the wound was opened up, a rib excised anteriorly to the extent of 1 in., and a determined effort made to drain the bronchiectasis; a tube was introduced into it, but the movements of the chest walls in respiration prevented it from staying there. Highly offensive matter flowed from this wound in a day or two, and a corresponding decrease was expectorated, and the boy's condition improved; the temperature became normal, and the drainage tube was left out on the tenth day. Gradually he gained weight and all expectoration ceased.

On December 2nd the right side of the chest was exposed to the action of x rays, which was repeated twice a week—four exposures in all. He then left the hospital to spend some weeks at Torquay, air at that time entering both lungs freely, pleural friction sounds being heard at the lower portion of the right lung, both back and front, whilst he had gained 1 st. in weight.

This case presented one or two special points of interest. Thus there were no adhesions found strong enough to prevent the lung from retracting from the wound. Neither was there anything to guide the palpating finger to the dilated bronchus.

Again, the movements of respiration, so much exaggerated anteriorly as compared to the movements of the ribs posteriorly, repeatedly pulled out the tube from the bronchiectasis, for although the latter was carefully mapped out prior to operating, as soon as air entered the pleuron the bronchiectasis was drawn upwards and towards the mediastinum.

The operation was therefore divided into three stages. On the efficient drainage of the bronchiectasis being established, the temperature fell to normal, and remained so with cessation of all sweatings.

Lastly, the collapsed lung and injured pleural cavity were subjected to x says for twenty minutes on four occasions.

Probably this case could not have been tuberculous, or the lung and sinus tracks would not have healed so well; but the quick ending of the case and restoration of the lung for breathing purposes was in my estimation materially helped by this procedure.

THE USE OF SCOPOLAMINE-MORPHINE IN LABOUR.

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In view of the interest that is now being taken in scopolamine, I have thought that my experience with this drug may be of value. Its power to produce analgesia in labour is now generally known, but unfortunately in many cases this result is only obtained with the risk that the child will be born in a state of apnoea. The following results will, I hope, suggest how this danger may be avoided.

Dosage.

The compound tabloids of Messrs. Burroughs Wellcome were employed; these are in two strengths—"A," scopolamine $\frac{1}{100}$ grain, morphine $\frac{1}{3}$ grain, and atropine $\frac{1}{150}$ grain; "B," scopolamine $\frac{1}{100}$ grain, morphine $\frac{1}{4}$ grain, and atropine $\frac{1}{150}$ grain. In all cases the drug was administered subcutaneously.

Analgesic Effect.

Of 20 cases, 4 exhibited complete analgesia, none of them remembering anything of the birth of the child. Three of these had one dose of "B" only, and the fourth had one dose of "A" followed two and a half hours later by one of "B"; in this case forceps were employed for delivery without chloroform. The patient was unaware that anything of the kind had been done.

In 13 there was a marked effect, the patients sleeping between the pains which caused little suffering. In 3 the effect was slight or absent.

Influence on Uterine Contractions.

In 4 cases in which inertia apparently followed the injection it is probable that primary inertia had been present throughout, masked by the distress of the patient. Where delay occurred during the second stage, it was clear that this was due to the absence of voluntary effort.

The Effect on the Fetus.

My cases seem to show that where delivery occurred at four hours or less after the injection the child was invariably affected to a greater or less degree. The only exceptions to this were 2 cases in which the drug was without any effect upon the mother whatever.

Of the 20 cases described above, only 18 can be counted so far as the effect on the child is concerned, because one of them was a case of twins and in another the infant was premature. Of these 18, in 9 the child was born perfectly normal; in these delivery occurred 13½, 9, 7½, 7, 6, 5¼ and 4½ hours respectively after the injection. In the 2 cases already mentioned delivery occurred one and three-quarter hours and half an hour after an injection which was without any effect on the mothers.

In 7 cases the child was born sleepy and slight cyanosed. They all responded to gentle stimulation, and never gave any anxiety as to their rapid recovery. Delivery occurred 3, 2¼, 4, 1½, 2, 4, and 1¼ hours respectively from the time of the injection. All the mothers received one dose of "B" only, except the last, who had a second injection of "A."

In 2 cases the child was badly asphyxiated. In the first the mother received two injections, the first of "B" and the second of "A," and the child was delivered with forceps three and three-quarter hours from the second injection. It was not breathing, was cyanosed, and the heart was beating very slowly. A hot bath was given and artificial respiration employed, with the result that recovery ensued in twenty minutes.

The second case was one marked by an extremely tedious and distressing first stage, and shows the value as well as the dangers of scopolamine.

The patient was a primipara, aged 23. Labour started on April 22nd, and the pains were so severe as to prevent her sleeping the same night. On April 23rd distressing pains continued, rendering her hysterical. In the evening, when examined, the os barely admitted the finger, and the abdomen was extremely distended, looking like a case of hydramnios. She was admitted the same night. In the morning of April 24th she had an injection of "B," and slept for five hours. Towards evening she again became very hysterical; the os only admitted two fingers, and so, other methods of pacifying her failing, she received another injection of "B" with good result. At midnight the membranes were ruptured artificially, as it seemed likely that there was an excess of liquor; this, however, was not the case. At 2 a.m. on April 25th she again became assailed by violent and distressing pains, and became very noisy. As the os was not yet three parts dilated she received another injection of "B," with the result that she slept until 5.15 a.m., hardly noticing the pains, and was almost unconscious of delivery at 5.45 a.m., three and three-quarter hours from the last injection, and about seventy-two hours from the onset of labour. The child was large, and weighed nearly 10 lb., thus accounting for the size of the abdomen. It was badly asphyxiated, being cyanosed and making no endeavour to breathe. It was put into a hot bath, brandy and ether injections given, and artificial respiration was kept up for forty-five minutes. Fortunately recovery was then rapid, and the child did extremely well later.

Thinking that the morphine was mainly responsible for these cases of asphyxia, I tried combining strychnine with the mixture, $\frac{1}{25}$ grain with the "B" injection and $\frac{1}{30}$ grain with the "A"; these doses for the sake of brevity I will call "BS" and "AS." The strychnine did not seem to mitigate the good results on the mother. In one case there was but little effect, but in the rest the result was good. Three of the patients had complete analgesia; the others were distinctly relieved.

Of 10 cases, 9 were normal children, delivery occurring 30, 13, 12, 8, 4¾, 4, 2¾, 2½ hours respectively after the injections. The first 6 cases are of no value as far as these results are concerned; but the last 3 are suggestive in view of the results in the first series, for in each case the mother received relief, and the child was born within four hours from the injection. In these 3 the dose was "BS" for the first two and "AS" for the last. The remaining case, however, shows that one cannot rely upon similar results in all cases. The child was born three hours after an injection of "BS"; it was drowsy and respiration intermittent, but recovered in twenty minutes after a hot bath.

In a recent paper Drs. Freeland and Solomons showed[1] that in their 100 cases, where morphine was, as a rule, never given in greater doses than ⅓ grain, there was only one case of apnoea, and in this ¼ grain was given. It is probable, then, that the cases of apnoea in my series were to a certain extent due to the larger doses of morphine usually employed. The above authors conclude that the dangers to the fetus have been much exaggerated; whether this is so or not it is clear that, in view of some of the preparations and combinations of scopolamine at present on the market, caution should be employed in their use.

Conclusions.

My conclusions are as follows:

1. The scopolamine-morphine combination is of great value where hysteria and distress are manifest during the first stage of labour. If possible it should only be given in the first stage and not repeated.
2. No ill effects to the mother need be expected even with full and repeated doses.
3. No ill effects need be expected for the child, even where the mother has had full and repeated doses, provided that delivery does not take place at four hours or less from the time of the last dose, otherwise apnoea will ensue. On the other hand, where the drug is without effect on the mother it is not likely to affect the child, even if born within four hours.
4. The cause of the apnoea is probably the morphine, and so where it is necessary to give the drug late in the first stage, or early in the second, the morphine should not be given in larger doses than ⅓ grain, or omitted.
5. A hot bath is the best treatment for the apnoea.
6. Strychnine may prove to be a useful addition to the mixture. It does not diminish the analgesic effect of the combined drug, and it may help to prevent the apnoea in the child.

My best thanks are due to Dr. J. S. Fairbairn, physician to the hospital, for his kind suggestions and permission to publish these results.

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[1] BRITISH MEDICAL JOURNAL, January 28th, 1911.

EVIDENCE OF RECENT SEVERE ILLNESS AFFORDED BY THE NAILS.

BY NORMAN FLOWER, M.A., M.B.OXON.,

With a Note by

SIR SAMUEL WILKS, BT., F.R.S.

I BELIEVE that attention was first drawn to this somewhat curious condition of the nails by Sir Samuel Wilks in a communication to the *Lancet* of January 2nd, 1869, since when a number of cases have been reported from time to time. The following case illustrates the condition so clearly that it is perhaps worth recording.

The patient was a lady, aged 61, who was seen for the first time on June 11th, the third day of her illness, due to a localizing appendicitis. Owing to the stoutness of the patient abdominal examination was rendered very difficult.

On June 18th temperature rose to 101.8°, and pulse 106. Examination under an anaesthetic revealed an ill-defined lump rather towards the middle line. Operation was at once proceeded with, and after opening the abscess I inserted a large tube. Drainage was good, and all went apparently well until June 21st, when secondary haemorrhage commenced. All the stitches were removed, and both fat and muscle of the abdominal wall were found to be gangrenous. No large bleeding points were found, but oozing was general.

On the following day, June 22nd, the patient became jaundiced and semi-comatose, so that we feared the onset of suppurative pylephlebitis. There was incontinence of both urine and faeces. Subcutaneous and intravenous infusion was resorted to, with but little improvement. Rectal salines were not retained.

On June 23rd the patient was quite comatose, the pulse imperceptible, conjunctivae shrivelled. Death was hourly expected. Saline infusion, etc., was continued.

On June 25th there was slight improvement, incontinence ceased, and the jaundice commenced to recede.

On July 3rd there was retention of urine, and the catheter was used.

On July 8th there was no attempt at repair in the wound; the lack of vitality and the toxic condition of the patient was well shown by the fact that the minute incision made for the intravenous infusion took five weeks to heal.

On July 13th the patient developed hypostatic pneumonia, from which a good recovery was made.

Although all the usual precautions were taken at the time of the saline infusion, the patient developed a pectoral abscess on the right side, no sign of suppuration appearing until four weeks afterwards (July 31st). A week later the same condition appeared on the left side.

The abdominal wound now commenced to granulate, eventually leaving a very small cicatrix. On August 24th the patient got up for the first time, and it was noticed that upon all the nails of both fingers and toes were transverse white lines, one-third of the way up. In addition to these marks there were transverse ridges, but these were only marked upon the index and third fingers of the right hand. The nail on the proximal

Fig. 1.

side of the lines was of a much softer nature. Allowing six months as an average for the nails to grow out, the position of the lines exactly corresponded to the roots of the nails when the patient was in the apparently moribund state two months before.

On September 10th the patient was walking without aid.

I am indebted to Sir Samuel Wilks, to whom the photograph was submitted, for his kindness in permitting me to quote the following comments and cases:

"I am much obliged to you for your interesting case and the photo of the hands of the patient, which is by far the best representation of the markings on the nails which I have seen, showing, no doubt, the time of the illness which you describe.

"The case is quite in accordance, as regards its history, with all the other cases which I have seen—that is, the condition of the patient at the time when these white marks took place. When I first noticed them, I was under the impression that they were indicative of some previous severe illness, but I subsequently learnt that this was not the case, for, if true, they would be of every-day occurrence, and well known to every medical man, and certainly not requiring the special notice which I believe I was the first to make.

"There may, however, be lesser degrees of these conditions where the lines might be less marked, and so perhaps overlooked.

"My opinion is that the furrow and white line on the nails show the line of death or approaching death which takes place during the patient's illness. In all the cases I have seen or known where these marks have appeared the patient has been at death's door; he has been regarded by the medical man and friends as dangerously ill, and, indeed, in the jaws of death, unless he soon rallied and then recovered. He has always become cold, pulseless, and death written on his face, causing the greatest anxiety to his friends, and in this state he may continue for some hours or several days. If he should fortunately recover, the sign of death is written upon him. During this precarious period all functionizing is

stopped and nutritive processes ceased. Probably a close microscopic examination might show in the viscera and secreting surface some line of withered cells, but the outside of the body alone comes to view, so on the hardened parts of the skin, represented by the nails, the death line can be seen.

"You say your patient was not expected to live, and the same was said of myself. After my operation I had blood poisoning, and at the end of three weeks, having gradually got worse, I was given up by nurses and doctors. Dr. Pye-Smith told my daughter that I should not live through the day. I, however, turned the corner, and showed the event on my nails. Recently, as you know, I have had a far more serious illness as regards pain and the operation, but never at any time did the illness come to a climax, and so I do not present any signs of it at the end of my fingers.

"Two other examples which I remember were cases of autumnal diarrhoea, or English cholera, as it is sometimes called. These both occurred in somewhat aged old gentlemen, who became so collapsed that it was thought they would die. One of these was a clergyman and relative (occurring about fifty years ago), and being the first that I had seen, made a great impression on me.

"Then came a case which I considered the proof of my opinion of what these marks indicate, as they occurred in a gentleman who had had no illness, but was twice nearly dead from sea sickness on his voyage to America, and also on his return.

"He was sent to me by a friend thinking I should like to see him, and he brought with him a photographic picture of his hand with the marking on his nails. These were two white lines or curves with a good space between. I then reckoned the time of his starting, the time he was in America, and the time of his return by the line which was nearest to the root of the nail and the uppermost of the lines. The dates were all accurate. The history of his voyage was written upon him.

Fig. 2.

"I showed this drawing at the Pathological Society[1] about twenty years after my first communication to the *Lancet*."

[NOTE.—Since these notes were written one more case has come under my own observation. A gentleman, aged 48, in whose case I resected a rib for a left-sided empyema and double septic bronchopneumonia.—N. F.]

REFERENCE.

[1] Pathological Society's *Transactions* for 1888.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE INFECTIVE GRANULE IN CERTAIN PROTOZOAL INFECTIONS, AS ILLUSTRATED BY THE SPIROCHAETOSIS OF SUDANESE FOWLS.

WITH reference to the paper entitled "The infective granule in certain protozoal infections, as illustrated by the spirochaetosis of Sudanese fowls" (a preliminary note),[1] which I sent you from Khartoum on March 12th, it is of interest to note that I have just received a copy of the *Quarterly Journal of Microscopical Science* for February. In it I find a paper by Dr. Bosanquet on *Sp. anodontae*. He finds that under certain artificial conditions this parasite of the crystalline style of the mussel breaks up into bead-like bodies, and states:

> It seems, then, that *Sp. anodontae* goes through a stage in development in which it breaks up into coccoid bodies, just as, according to Leishman, *Sp. duttoni* breaks up into similar bodies inside the body of the tick.

He might have added—just as the spirochaete of Sudan fowls breaks up into granules in the body of *Argas persicus*.

[1] BRITISH MEDICAL JOURNAL, April 1st, 1911, p. 752.

The analogy is most interesting, and I am now in a position to state that I have found that the fowl spirochaetes, ingested by the tick, behave in the contents of its alimentary diverticula exactly as they do in the liver, spleen, lung, and, under certain conditions, in the peripheral blood of infected chicks either at the natural crisis or at a crisis artificially produced by the administration of salvarsan. In other words, they start shedding granules and continue doing so until their periplastic sheaths are empty or nearly so. May I suggest that Dr. Bosanquet would do well to study *Sp. anodontae* by means of the dark-field method, in order to determine if it undergoes the curious and suggestive changes which I have found to occur in the spirochaete that I have named provisionally *Sp. granulosa penetrans*? It is, I think, possible that the short rod and small spirochaete forms which he shows in his illustrations (*24a* and *24b*) are really developed from the coccoid bodies, and not, as he suggests, a stage prior to the formation of the latter. I have found very similar forms undoubtedly developing from granules in the Malpighian tubes of infected *Argas persicus*.

ANDREW BALFOUR.

Wellcome Laboratories, Gordon College, Khartoum.

A CASE OF MELANCHOLIA WITH ATTEMPTED SUICIDE.

A MARRIED woman, aged 56, was admitted to Northumberland County Asylum suffering from melancholia following an attack of hemiplegia. In the reception order she was described as suffering from marked depression with horrifying delusions that animals were consuming her, which occasionally caused her to scream loudly for hours at a time. She had expressed a desire for death as she was not fit to live. She had previously attempted suicide by trying to swallow her false teeth.

On admission, she was found to be frail and feeble, with partial paralysis of left arm and leg; cardiac action irregular and intermittent, with loud mitral systolic and presystolic murmurs; pulse 88, temperature 98.2°. She was at once put to bed in the infirmary ward.

Mentally, she was acutely melancholic, very depressed, and suicidal. She continually moaned and said she wished she was dead. She stated that she would never recover, and that it would be better if she were allowed to die. She also said she would put an end to herself at the earliest opportunity. For three weeks following her admission she remained very dejected and querulous, always complaining of pain, and expressing a wish for release from her sufferings by death. She was kept continuously in bed under supervision. Extra diet considerably improved her general bodily health. About a month after admission the night nurse heard her groaning loudly, evidently in great pain. On inquiry the patient told the nurse that she had thrust four knitting-needles into her abdomen.

On examination, three needles were distinctly palpable under the skin of the abdomen, their positions being clearly indicated by the extravasation of blood into the surrounding tissues in the line of the needle track.

Several small punctured wounds could be made out in the region of the umbilicus, where the needles had entered the abdominal wall. Similar wounds were present in the palm of the right hand, which had been used to force the needles into the belly. Two of the needles lay parallel to each other, about ¼ in. apart, between the umbilicus and ramus of pubes on the left side. The third was situated in the right groin immediately beneath the skin. The fourth needle could neither be seen nor felt, but the patient declared emphatically that they were all four in her abdomen. Her bedding and clothes were searched carefully, but without finding the missing needle.

Mr. Turner of Newcastle examined her under an anaesthetic, but could only locate the positions of three of the needles previously described. After emptying the bladder, Mr. Turner examined the patient per vaginam, but without success.

Two small incisions were then made through the skin of the abdomen, and two of the needles were easily extracted; they had not penetrated any deeper than the sheath of the rectus abdominis. The third needle, in the groin, when withdrawn, was found to be broken about 2 in. from the

distal end, the fracture being evidently recent. The broken fragment could not be felt, and was probably embedded in the muscles of the thigh. The fourth needle was eventually discovered. This had passed through the muscular wall, and had entered the omentum. So far as could be ascertained, the intestines had apparently escaped injury. The knitting needles measured 9½ in. in length.

The incisions were closed in two layers—the peritoneum and muscular portion of the abdominal wall with catgut sutures, the skin with silkworm gut. The wounds were then dressed, and the patient put back to bed.

She bore the operation well. She vomited a little during the afternoon, but slept well at night. On the following day her temperature was normal, pulse quiet, and her condition generally in every way satisfactory.

Since then her bodily condition has steadily improved; the wounds have healed by first intention, but mentally she shows no signs of improvement.

GUY R. EAST, M.B., B.S., D P.H., B.Hy.,
Assistant Medical Officer, Northumberland County Asylum.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

ROYAL INFIRMARY, DUMFRIES.

A CASE OF STRANGULATION OF THE VERMIFORM APPENDIX.

(By A. J. GORDON HUNTER, M.B., Ch.B.Edin., late Senior House-Surgeon.)

THE patient in the following case, a boy aged 15, was admitted on January 14th, complaining of pain over the right inguinal canal. On the preceding day he had had occasion to lift several heavy weights, and in the evening began to feel severe pain of a gnawing character in the region above mentioned. His medical attendant was summoned, and a blister applied over the painful area. His condition not improving, he was removed on the following day to the infirmary.

State on Admission.—The temperature was 97.8°, and pulse 78. Inspection showed a distinct fullness over the right inguinal region, and palpation revealed a swelling about the size, in thickness, of an ordinary lead pencil, and very tender to touch, in the line of the canal. The spermatic cord was not thickened, and there was complete descent of the testicle.

Progress.—The patient was kept under observation for forty-eight hours, during which time the temperature gradually rose to 101°, and the pulse-rate increased to 90 per minute.

Operation.—On January 16th an incision was made over the swelling, and in the inguinal canal was found a sac containing the vermiform appendix. Further dissection showed that the sac contained no caecum. The appendix was tense, congested, and rigid as a finger. On gentle traction it could not be made to descend further into the wound. A second incision was accordingly made over the appendicular region, and entrance gained thus to the abdominal cavity. The caecum was found to be dragged downwards and fixed above the internal abdominal ring, whilst the body of the appendix protruded through the ring. The appendix was ligatured at its base, and a little careful dissection sufficed to free it sufficiently for removal. Examination of it showed a well-defined groove, due to constriction at the internal ring. Distal to the groove the appendix was excessively swollen, the proximal part presenting a normal appearance. Within the appendix was found a pellet of No. 10 sparrow shot, which appeared, however, to have occasioned no disturbance. The usual technique of the radical cure for hernia was followed, and the abdominal wound closed.

The patient made an excellent and uninterrupted recovery.

I have to express my indebtedness to Dr. P. M. Kerr, Senior Surgeon to the infirmary, who performed the operation, for his kind permission to publish the notes of the case.

Reports of Societies.

THE ROYAL SOCIETY.

Thursday, March 30th, 1911.

Sir ARCHIBALD GEIKIE, K.C.B., President, in the Chair.

The Chemical Dynamics of Serum Reactions.

CAPTAIN A. G. MCKENDRICK, I.M.S., contributed a paper on this subject, in which he arrived at the following conclusions: (1) Amboceptor and complement are opposed in their action on the cell, with the proviso that the former acts as a catalyst to the latter. (2) Complement action is lytic; amboceptoral action is primarily polymerizing, or, as the case may be, agglutinative, and secondarily catalytic to complement. (3) The relation of these substances is expressed by the Law of Mass action, in the form—

$$\frac{dz}{dt} = \frac{y}{c}\left(\frac{x}{cs} - z\right) - \left(\frac{y}{c} - z\right)^2.$$

(4) When the substance acted upon is in sufficient quantity, this expression describes all serum reactions—namely, haemolysis, bacteriolysis, opsonin and stimulin reactions, agglutination, precipitation, and toxin action. (5) Toxins are compound, and consist of amboceptor and complement.

Variation and Adaptation in Bacteria.

Dr. E. W. AINLEY WALKER read a paper on variation and adaptation in bacteria, illustrated by observations upon streptococci, with special reference to the value of fermentation tests as applied to these organisms. He pointed out that numerous attempts had been made to differentiate and to identify varieties of bacteria by means of chemical reactions produced by them in special culture media. One of the most interesting of these attempts was that made by Gordon to prove the existence of definite varieties among streptococci by the use of certain test media. Gordon and those who followed him believed that they could thus subdivide the streptococci into a number of fixed and independent varieties, and classify them into what Andrewes and Horder had spoken of as "provisional species." Their conclusions, however, could only be accepted were it proved beyond question that the reactions on which they relied were stable and constant. Dr. Walker adduced evidence from an extended examination of particular strains of streptococci that the reactions concerned were by no means constant. Under the conditions of ordinary cultivation in agar jelly, and still more under culture in the environment supplied by special media, particular strains of streptococci exhibited wide variations in their reactions to Gordon's test media. Thus strains which at one time were totally different in their test reactions might at another be found to be identical. Further, it appeared that after suitable manipulation particular strains might be made to assume the characters now of one, now of another of the types supposed to be differentiated by Gordon's tests. Dr. Walker concluded that no evidence existed of any fixed or specific differences among streptococci pathogenetic for man, but that the differences observed were due to merely temporary and casual variations in the metabolism of these micro-organisms which thus readily adapt themselves to changed environment. Accordingly it was quite possible that suitably selected tests might be made to afford some valuable indication as to the probable habitat or recent environment of any given strain of streptococci.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

Tuesday, March 28th, 1911.

Sir W. H. ALLCHIN, Vice-President, in the Chair.

Electro-cardiograms.

DR. THOMAS LEWIS read a paper on the electro-cardiographic method, and gave a demonstration of electro-cardiograms from actual patients. After describing the instrument employed—a development of the string galvanometer of Einthoven, the reflected light from the galvanometer making a record on a moving photographic plate—he showed and analysed normal cardiograms and those of premature auricular and ventricular contractions respectively; he concentrated

attention on the two conditions—delirium cordis and paroxysmal tachycardia. As a result of such observations, it was possible confidently to assert that delirium cordis was a fibrillation of the auricle. This fibrillation was responsible for at least 50 per cent. of all irregular pulses, and it was in a large number of cases the herald of the final breakdown of the heart in cases of heart disease. Paroxysmal tachycardia could be shown by the method to be of several distinct classes, two of which were of special importance. In one the paroxysm consisted of crises of auricular fibrillation; in the other the paroxysms depended on the awakening of new impulse formation in the heart muscle from a point other than the normal source. He also showed and described the information obtainable from cardiograms in the condition of heart-block. As compared with other methods, the galvonometer had already substantiated the bulk of the facts obtained with the polygraph; it supported the present-day interpretation of the majority of venous pulse records. The galvanometer was, however, a laboratory instrument, the polygraph a clinical. Although more precise, it was less convenient to use. Its records were much easier to read than those of the polygraph, and it had the great merit of showing at what point in the cardiac chamber the contraction waves arose in different cases.

Suffocative Catarrh in the Adult.

Dr. Samuel West read a paper describing a case of this condition due to acute pneumococcal bronchitis, and a second case in which the pneumococcal disease was one-sided, and mentioned other cases in some degree resembling them. In the second case, which was not fatal, there was at one stage copious haemoptysis. He referred to a case he had recorded several years previously, in which the apparent cause was a diphtheroid bacillus. It would thus appear that Laënnec's acute suffocative catarrh was ordinarily an acute bacterial infection, and probably more often pneumococcal in origin. It seemed justifiable to hold that pneumococcal infection of the lung might be massive, as in the usual form in the adult, or disseminated, as commonly seen in children, or occur as a general or even unilateral bronchitis.

Section of Diseases of Children.

At a meeting on March 24th, Dr. E. Cautley, President, in the chair, Dr. D. Forsyth read a paper on the history of *Infant feeding in Elizabethan times and onwards*. Tracing the changes in breast-feeding through nearly 400 years, the speaker showed that in each century the period of suckling had steadily declined. Beginning in the fifteenth century at two to three years—a duration which is still customary among, for example, the Japanese and the Greenlanders—it had become eighteen months to two years under the Stuarts, one year in the Georgian days, and now lasted only about eight months. Step by step the mother had been supplanted, first by the wet-nurse and later by the sucking-bottle. The rise and fall of the wet-nurse, who reached her palmiest days in the eighteenth century, were described, together with the social evils that she brought with her. Artificial feeding was quite unknown until the time of the Hanoverian succession, and even then the choice of food was limited to bread-and-water pap. A little later cow's milk came into use, and the speaker showed that the profound suspicion of all artificial methods was to be accounted for by the sanitary condition of the people in Tudor and Stuart times. Cow's milk, however, for more than a century after its introduction, was held in general disrepute, for the reason, no doubt, that a widespread prejudice against boiled milk existed among all classes. In the nineteenth century three notable developments were witnessed—first, the invention of the sucking-bottle; secondly, the manufacture of proprietary foods; and thirdly, the final acceptance after long struggles of artificial methods. The original feeding-bottle was a cow's horn, to the tapering end of which were tied a couple of pieces of leather, sewn together like the finger of a glove, and the babe sucked its milk between the stitches. The gradual stages by which this horn developed into the modern hygienic feeding-bottle were traced. Finally, the more recent developments in the methods of feeding during the last fifty years were described. In conclusion, the speaker, recalling the striking decline in the duration of breast-feeding and the steady progress of artificial methods, glanced at the future of infant feeding. Did it lie with the method of Nature or with the methods devised by man's ingenuity? His experience had been that medical men, more often than was sometimes thought, supported the bottle against the breast, and he thought that in doing this they were showing no more than a practical appreciation of the modern trend of infant feeding. The numerous cases exhibited during the evening included the following: Dr. H. Morley Fletcher: (1) *Infantilism with chronic nephritis and polyuria* in a boy, aged 6 years, who had not grown since he was 2 years old. His height was 2 ft. 7 in. The administration of thyroid extract had had no effect. (2) *Infantilism with thyroid inadequacy (juvenile myxoedema)* in a girl, aged 8 years. Three months' thyroid treatment had caused considerable improvement but no growth. Dr. J. D. Rolleston: *An instance of "blue sclerotic"* in a male infant, aged 9 months. The child presented a uniform blue coloration of both sclerotics, a characteristic which was present in the mother, and in the grandmother and an aunt on the maternal side. Dr. F. E. Batten: *Simple atrophic type of myopathy* in a boy, aged 6 years. There was general wasting without localized atrophy or hypertrophy, and almost all movements could be performed so long as no strength was required. Mr. P. Maynard Heath: (1) *Syphilitic osteitis of the femur* in a boy, aged 7 years. Twenty-two months ago he was struck on the left thigh by a large stone, but it was not until three months ago that the thigh began to swell. A skiagram showed diffuse osteitis of the whole shaft and neck of the femur. There was a history of syphilis in the father, but the boy showed no other signs of inherited disease. (2) *Multiple exostoses* in a boy, aged 5 years. Dr. F. Langmead: (1) *Myopathy* in a boy. The lower extremities showed definite pseudo-hypertrophy, but other muscles, such as the pectorales, trapezii, and latissimi dorsi, were atrophied. A point of interest was whether the facial muscles were affected. The usual facial movements could be performed, but the boy had a fixed expression, and "never smiled."

Therapeutical and Pharmacological Section.

At a meeting on March 21st, Dr. J. Gray Duncanson in the chair, Dr. W. Langdon Brown, in a paper on *The value of rectal feeding*, pointed out that the evidence of absorption of proteins and fats chiefly depended on the failure to recover the whole of the administered nourishment by washing out the bowel. It was notoriously difficult to empty the bowel completely in this way, and the fact that the food could not be recovered did not prove that it had been assimilated, since it might have undergone putrefactive changes, which would render it useless. The chief structure for the absorption of food was the highly specialized epithelium of the villi, and unless regurgitation through the ileo-caecal valve occurred—an improbable event—the amount assimilated from rectal feeding must be very slight. He had observed the amount of fat in the tissue of a case of chyluria under Dr. Samuel West's care, first when on a fat-free diet, and then when enemata of pancreatized and emulsified fats were given. Though fat given by the mouth increased the fats in the urine at once, enemata of fat did not. Absorption of dextrose per rectum was proved by the way it raised the respiratory quotient, and abolished or diminished acidosis. Salts and water could certainly be absorbed and were probably the constituents to which nutrient enemata owed their reputation. He had compared the nitrogenous output in the urine on rectal salines and on nutrient enemata, as a safer guide to the assimilation of nitrogenous food by the bowel than the recovery method. In both the fall in the nitrogen excretion followed the same course and was directly comparable to that found in healthy fasting men. On giving the same food by the mouth as that contained in the nutrients, the nitrogen excretion at once rose again. The conclusion was that if any protein were absorbed by the large bowel, the amount was so small that it was not worth while to submit the patient to so unpleasant a procedure. When the efficacy of nutrient enemata was so seriously open to question, their drawbacks assumed greater importance. These were considered in turn, and the speaker expressed the opinion

from his experiments that between the Lenhartz method of immediate feeding by the mouth, and the use of rectal salines with 5 per cent. of dextrose, there was no place in therapeutics for nutrient enemata containing protein and fat. Dr. D. V. Cow, in a paper on the *Reaction of isolated arteries to certain drugs*, dealt with carbon dioxide, alcohol, adrenalin, pituitary extract, the digitalis series, ergot, barium, and the nitrites. The method of observation was that introduced by O. B. Meyer. Adrenalin, he concluded, caused contraction of isolated rings of most arteries; rings from peripheral branches of the pulmonary artery were unaffected by it, while cerebral and coronary arteries were relaxed. Pituitary extract caused contraction of most arteries, but rings from the large arteries of the splanchnic area were relaxed by it, the effect becoming more marked as the periphery was approached. All arteries alike were stimulated to contraction by barium and relaxed by nitrites. Calcium salts diminished the sensitiveness to adrenalin and pituitrin, but left that to barium unaffected.

LIVERPOOL MEDICAL INSTITUTION.

Thursday, March 30th, 1911.

Dr. T. R. BRADSHAW, President, in the Chair.

Oral Administration of Vaccines.

DRS. STENHOUSE WILLIAMS and C. FORSYTH described a number of experiments undertaken to test the reliability of the oral administration of vaccines. The work of Latham was, they thought, largely vitiated by the fact that in the great majority of his cases he gave the horse-serum along with the vaccine. In their own experiments they administered pneumococcic vaccine to guinea-pigs both by the intraperitoneal inoculation and by oral administration. A dose which was surely fatal when inoculated failed when given by the mouth to produce any apparent result, even when multiplied four or five times. They considered that, even though some fraction of a dose given by the mouth to a human being might be absorbed, it was impossible to know what was the proportion, or whether such proportion was a constant. The administration of each dose must, therefore, be regarded as a matter of pure guesswork, and the method unreliable. Dr. RUNDLE considered that some effect must result from the oral administration of vaccines, since he had been able to detect the effect of a small overdose, shown by symptoms similar to those resulting from a small overdose given by the subcutaneous method. Dr. WARRINGTON was surprised that so little evidence had been brought forward by the advocates of the oral method of administration.

Epidemic Anterior Poliomyelitis.

Dr. N. PERCY MARSH drew attention to the wide distribution of anterior poliomyelitis during the last few years in Europe and America, its appearance during the summer and autumn of 1910, and its probable recurrence in 1911. The investigations of Flexner and Lewis demonstrated that the path of infection and also of elimination was probably the naso-pharynx. The establishment of the phenomena of active and passive immunity was also referred to, and the possibility that in the near future a specific serum would be obtained. With regard to treatment, he emphasized the importance of isolation, and disinfection of the discharges of the naso-pharynx, and regarded urotropine as of value in the early stages. Electricity and massage should be employed as soon as the painful symptoms had subsided, and endeavours to prevent deformities by means of suitable appliances should be early undertaken. The PRESIDENT mentioned that anterior poliomyelitis was occasionally met with in the adult. In the summer of 1907 he had under his care two cases in men aged 28 and 53 from the same district, and who were taken ill within ten days of each other. The difficulty of recognizing the disease before irreparable damage had been done to the nerve centres made difficult in its turn the effective use of any specific treatment. Dr. T. R. GLYNN said that in a long hospital experience he had met with but few examples of the disease in adults. In one typical case there was paralysis of the muscles of the neck as well as of the extremities. This patient made a good recovery, with the exception of some weakness of the anterior tibio-fibular group of muscles. Dr. WARRINGTON thought that the diagnosis in early cases was more difficult in children than in adults; in the latter some well-defined rules could be formulated for the distinction between anterior poliomyelitis, Landry's paralysis, and polyneuritis of the very acute type. In children he thought lumbar puncture would play an important part in the distinction in early cases between meningitis and poliomyelitis.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Friday, March 17th, 1911.

Dr. A. CHRISTY WILSON, President, in the Chair.

Infection of the Kidney in Pregnancy.

MR. J. F. DOBSON, in a paper relating to infection of the kidney during pregnancy and the puerperium, expressed the opinion that the majority of these cases recovered under treatment, but some became chronic. In one of his cases infection of the kidney during the fifth month of pregnancy gave rise to the formation of multiple abscesses in the cortex, and he performed nephrectomy without interrupting the pregnancy. In another case symptoms of renal calculus occurred during pregnancy, and as a result of puerperal sepsis the kidney became infected, and a pyonephrosis developed. He performed nephrectomy successfully, but the patient was extremely anaemic for some weeks after the operation. On cutting into the specimen it was found that the suprarenal capsule had been removed with the kidney, to which it was firmly adherent. He also described cases where pyelitis, similar in every respect to the disease as observed during pregnancy, occurred in non-pregnant women. Dr. C. OLDFIELD said he had met with 7 or 8 cases of the severe forms of acute pyelonephritis of pregnancy during the last four years. He had never found it necessary to operate or even to terminate the pregnancy. If medical treatment failed, rupture of the membranes was simple, safe, and efficacious. Lavage through ureteral catheters should be reserved for exceptional cases where the former proceeding was not successful. Nephrotomy and nephrectomy had occasionally been done by surgeons, but obstetricians did not find such severe measures necessary. The chief danger appeared to arise from operations, especially when the condition was wrongly diagnosed as appendicitis.

Cases and Specimens.

The following were among the exhibits:—Mr. J. STEWART: A specimen of femoral and popliteal arteries from a case of *Senile gangrene* in a man, aged 79, the subject of diabetes. Three months after the commencement of gangrene in the big toe amputation was performed through the junction of the middle and lower thirds of the femur, the gangrene then having spread to the dorsum and sole of the foot. There was no ligature required at any stage of the operation. Healing took place by first intention. The femoral artery was represented by a fibrous cord, and was impervious though all the branches below were patent. Mr. ALEXANDER D. SHARP: A case of a *Persistent thyro-glossal duct* in a child aged 2½. There was a tiny opening in the middle line of the neck between the hyoid bone and the thyroid cartilage. It was first noticed by the mother when the child was 6 months old. The opening admitted a probe of calibre of a Eustachian bougie for about ⅓ in. Fluid which exuded from time to time in very small quantity was almost colourless. Mr. A. GOUGH: A child, aged 6 months, recovering from *Basal meningitis*. The cerebro-spinal fluid obtained by lumbar puncture contained large numbers of Gram-negative cocci similar in appearance to those of Weichselbaum. Treatment with autogenous vaccine was followed by rapid improvement. The child was now very well, but showed slight hydrocephalus. Mr. H. COLLINSON: A child, aged 12, upon whom an arthrectomy for tuberculous kidney had been performed eight weeks previously. A paste consisting of bismuth subnitrate 2 parts, iodoform 1 part, and solution of hydrarg. perchlor. $\frac{1}{100}$ was rubbed into the wound surfaces. For the last six weeks the child had suffered from salivation and black discoloration of the gums, cheeks, and lips. The symptoms were thought to be due to poisoning by bismuth. Mr. A. L. WHITEHEAD: A skiagram of a *Piece of steel in the vitreous*. A flap of

conjunctiva was reflected on the outer side and the piece of steel removed by Haab's magnet through an incision in the sclerotic behind the ciliary processes and between the external and inferior recti.

HARVEIAN SOCIETY OF LONDON.

Thursday, March 9th, 1911.

Mr. Ernest Lane, President, in the Chair.

Discussion on Colitis.

A discussion on this subject was opened by Dr. Sidney Phillips and Mr. D'Arcy Power. The observations of the latter are recorded on page 863 of this issue. Dr. Phillips said that so-called membranous colitis included inflammatory or true colitis and non-inflammatory cases incorrectly called colitis. The latter was frequently due to spasm of the intestine, and the Plombières treatment was sometimes useful. Simple colitis was sometimes an early stage of ulcerative colitis, and there was no precise distinction between them. Sometimes the whole of the colon was denuded of mucous membrane. Perforation sometimes occurred, and occasionally death was deferred for days after this accident. Among the symptoms were acute paroxysms of abdominal pain and also leucocytosis; neither of these occurred in typhoid fever. Hiccough was a common symptom. Prognosis was doubtful; when so-called "mucous colitis" was excluded the mortality was high. As to etiology, he did not think that lead poisoning was a cause, but was convinced that acute colitis might result from articles of food or from water. Asylum dysentery was true dysentery, but in London colitis rarely gave bacteriological evidence of identity with amoebic dysentery. As to treatment, drugs were of little use, though calomel and opium were of value. The worst cases might recover, and appendicostomy was sometimes useful. Vaccine treatment was of use, but in very acute cases the prospects of success were small. Dr. Hale White thought the main cause of membranous colitis was constipation. The distinction between primary and secondary colitis was important. Primary colitis was of better prognosis. Mr. John Matthews said that he was usually called upon to identify the organism involved in colitis and not to make a clinical diagnosis. Sometimes he had obtained organisms direct from the ulcers through a speculum which were pure *B. pyocyaneus*. Inoculation with this organism led to rapid improvement. Another case met with similar success with Friedländer's bacillus. As a rule, he made a thin emulsion with the faeces and planted this upon neutral red lactose agar plates, from which discrete colonies of different organisms could be isolated. Diagnosis was made by estimation of the patient's opsonic index to the various organisms. He maintained strongly that infected organisms do not appear in the urine; catheter specimens in these cases were almost invariably sterile. As a rule, he used vaccine of coliform bacilli and occasionally a streptococcic vaccine. Mr. C. W. Buckley regarded mucous colitis as a catarrh of the mucous membrane due to retained faeces or bacterial toxins, and thought that neurasthenia or arthritis associated with the condition were due to the same cause. Mr. Bidwell said that colitis should generally be treated by medical methods, but some cases required operation. When the colitis depended on appendicitis removal of the diseased appendix often led to cure, but not always. There was a form of colitis which gave rise to single deep ulcers producing adhesions. In these cases perforation often followed, and, since the condition showed a tendency to recur, he advocated ileo-sigmoidostomy. This operation was only to be performed when the lower half of the sigmoid was healthy, as determined by the sigmoidoscope. The ileum should be divided between the anastomosis and the caecum. Troublesome diarrhoea did not follow the operation. Dr. Willcox referred to the beneficial effects of treatment by an autogenous vaccine in cases of colitis which had not responded to more ordinary medical measures. Vaccine treatment should be tried before the abdomen was opened, except in the very acute cases, where immediate surgical treatment was often necessary. Cases on which appendicostomy had been performed with benefit frequently relapsed after the appendix opening closed. Gastric and duodenal ulcer were frequently associated with colitis. By analysis of the gastric contents in cases of colitis he had found marked hyperchlorhydria often present, especially in the early stages of the disease.

BRADFORD MEDICO-CHIRURGICAL SOCIETY.

At a meeting on March 21st, Dr. Mitchell in the chair, Dr. Heilborn, in a paper on *Infantile mortality*, said that in most cases the primary cause of death was neglect or ignorance or both on the part of the parents. Neglect due to circumstances was the most important and difficult problem. A great factor was the increase of woman's labour. As regards ignorance, it could only be described as amazing. It was fostered by the mischievous advertisements of patent foods. Even the medical profession had been led astray, and one heard only too often that the doctor's advice had been, "Try somebody's patent food." In this respect the lady inspectors were doing good work. Among the poor many women had not sufficient milk to nurse their own babies. As regards artificial foods, samples of many very different kinds of which had been obtained, he showed that it was not alone the quality of the food which was important, but also the general management of infants. At present, instead of teaching mothers how they could best prepare themselves to nourish their own children, they were being taught to avoid nourishing them by making it *apparently* so easy to feed their infants artificially, and having been taught this, they were being supplied with dirty milk, which had to be cleaned and prepared at great expense. To remedy all this work should be undertaken somewhat on the following lines: (1) To institute a thorough system of education for those about to become mothers. (2) To pass a law preventing all women about to become mothers from working in a factory or mill. (3) To institute a system of dairies through which the public can be supplied with pure fresh milk. (4) That every physician who delivers a child should look upon that child as his patient, and that it should be under his immediate supervision during the whole of its infancy. (5) That the sale of patent foods *to the public* be made illegal. (6) To obtain an efficient army of competent and trained lady inspectors who shall visit every infant each week and immediately report to to the physician if the infant does not seem to be thriving. (7) To make it illegal to insure an infant's life. Meanwhile, means must be found to deal with the wasting babies which were the result of the present hopelessly inadequate system. Nursling hospitals, such as were to be found in Paris, Berlin, and Vienna, must be built in every large town, and the old system of allowing wasting babies to be casually treated at a general hospital or a children's hospital must be entirely discarded.

CHELSEA CLINICAL SOCIETY.

Under the chairmanship of Mr. Parkinson, the annual debate was resumed by Mr. Lockhart Mummery, who, dealing with *Colitis* from the surgical point of view, said there were two principal methods of operation: (1) Giving the colon rest by artificial means in the caecum, or by ileo-sigmoidostomy; and (2) making an opening through which the colon could be irrigated. Right caecal colotomy gave the best results as regards recovery from the colitis, but the artificial anus had often to be made permanent. On the other hand, ileo-sigmoidostomy was usually too severe an operation in view of the patient's condition, and the sigmoid flexure was very likely to take on ulceration after it. The second method was far the best, and of all the operations for carrying it out appendicostomy was the most suitable. In cases where the appendix had been removed, or for other reasons was not available, a catheter could be fixed into the wall of the caecum. The operation could be rapidly performed and with very little risk. A tube being placed in the rectum, the colon was thoroughly washed out with water or a saline solution, and the washing repeated every five or six hours. The good effect was usually very rapid and striking, even in cases in which, from the physician's point of view, there seemed to be very little chance of recovery. Dr. Eyre, dealing with the bacteriology of the subject, said that in the chronic forms of muco-membranous colitis a variant of the *Bacillus coli* type was usually found. It

was to these changed or evolved organisms that the continuance of infection was generally due. In acute forms the infecting agent was easily found, but in the chronic forms it was more difficult, successive dilutions having to be made to get rid of the harmless organisms. Out of 32 cases the speaker had found 23 to be due to acute or subacute ulceration. In two others the pneumococcus was found associated with other organisms. In 6 out of 9 chronic cases he found coliform organisms—*Bacillus coli* in 1, and *Bacillus pyocyaneus* in 2. If ordinary medical and surgical measures failed, vaccines were then required, but they should always be autogenous. Stock vaccines in these cases were of very little use.

Reviews.

MEDICAL MEN IN THE TIME OF CHRIST.

To the student of medical history anything is of interest that helps to throw light upon the state of the medical profession in the past; therefore a book such as *Medical Men in the Time of Christ*,[1] by Dr. ROBERT N. WILLSON of Philadelphia, which contains many details concerning the social and scientific position of the doctor in the early days of the Roman Empire, will be welcomed by a certain section of the reading public. Commencing with an outline of the history of medicine from its earliest beginnings at the dawn of the world (for we are told that "there are many indications that medical knowledge of a primitive type may be traced to the beginning of human existence"), Dr. Willson gives a graphic description of the immense difference which existed in the status of the doctor at different periods and in different parts of the ancient world. Thus, for example, whilst in such countries as Greece, Egypt, or Palestine the medical profession, possibly on account of its close connexion during many centuries with the priesthood, was always regarded with peculiar veneration, in Rome under the Republic, where "the fact that their services commanded an honorarium had relegated the physician and the surgeon to the unpopular class of artisans that strove for money gain," medicine was looked down upon as an occupation fit only for the *Græculus esuriens*, who, to make matters worse, was usually a slave. It was not until the emancipation of the Greek physicians by Julius Caesar in 49 B.C. that "the medical profession came out of bondage into its own," and for the first time was considered an honourable calling for a free-born citizen of Rome. It is interesting to note that at the time of Our Lord's birth the Jewish physicians, afterwards famous throughout the Middle Ages for their knowledge and skill, were already to be found practising in most of the Roman provinces, and, even at that early date, seem to have been greatly esteemed for their learning. They do not appear to have enjoyed a similar reputation for virtue, at any rate amongst their own countrymen, if we are to accept the evidence of the Talmud, where it is gravely stated that whilst "all ass-drivers are wicked, camel drivers are honest, sailors are pious, physicians are destined for hell." Even the best is doomed to this fate (*Medicorum optimus dignus est Gehenna*). It is possible that at times these amazing sentiments were shared by their Gentile patients, at least if the Hebrew doctors steadfastly adhered to some of the precepts laid down in the Talmud, which taught that an oath sworn to a Gentile was never binding on a Jew, and that it was permissible for one of the Chosen People "to heal Gentiles only for the sake of the fee, or for the practice of medicine, but it was not allowed to save their lives in seasons of danger."

It is the sidelights on history which are afforded by details such as these that make Dr. Willson's book well worth reading. It is a pity, however, that the author, whose work shows evident signs of a careful study of his subject, has not exercised more discrimination in the handling of his materials, and so avoided a certain amount of confusion in his narrative. This, however, is the only drawback to an otherwise very readable account of the medical profession at a critical period of its development, which derives much additional interest from the finely reproduced photographs with which the volume is illustrated.

[1] *Medical Men in the Time of Christ.* By Robert N. Willson, M.D. Published by the Sunday School Times Company, Philadelphia. 1910 Pp. 157. 1 dollar.)

UROLOGY.

IT is some two years since we reviewed M. ALBARRAN'S[2] book on the operative treatment of the urinary tract. We have now read and re-read it, and the publication of the first two parts of a translation of the work into German gives us the opportunity of saying that we are confirmed in our good opinion of it. The arrangement of the work, the completeness of the anatomical descriptions, the carefully-balanced opinions, and the beautiful illustrations are alike worthy of the highest praise.

M. LEGUEU'S[3] surgical textbook of urology is also a good book. As a rule textbooks seldom attain to the excellence of a monograph. The author is unable to go sufficiently into detail on the points in which he is interested. He is bound, on the other hand, to touch on things that do not interest him, and in this way he may quote a statement without testing its truth. He may lay great stress on an unimportant point, or may miss out much that is quite essential. And yet M. Legueu has given us an interesting book. This is chiefly due to the inherent capacity of the author and his grasp of his subject. It may partly be due to the fact that the textbook is on one branch of surgery only, and in so far it approaches a monograph.

The book by Dr. OTTO RINGLEB[4] on the optical and mechanical apparatus and the history of the cystoscope deals with all the aspects of the physics of the cystoscope with characteristic thoroughness of detail. The optical phenomena are worked out mathematically, and illustrations are given of all the different forms of cystoscope made. The book, no doubt, is written on the principle that the user of an instrument should know all about it. But we hardly think that many will care to follow Dr. Ringleb through all his details. We have said above "characteristic thoroughness of detail" because we feel that the works under consideration typify the characters of the two nations. They further show that this national characteristic becomes grafted on to the subject that an individual works at, instead of the science moulding the individuals and smoothing away differences. On the one hand we have the brilliant interesting work written by a single individual from his own experience, supplemented here and there by reference to other authors, sometimes to agree with them, sometimes merely to point out that they are wrong. The two works are examples of the highest individualism. They each contain evidence of years of careful work, of close observation, and long experience. For every detail the author goes first to his own experience and to anatomy and pathology, to individuals rather than to the writings and opinions of other men. They seem only to turn to these for confirmation or to see what others think, not to learn from them. And it is in these directions that the value and excellence of the French works lie. On the other hand, we have the work of the man who inquires into the minutiae of everything, who will laboriously build up a foundation of facts gathered from the writings of the whole world, without taking us much further on or interesting us very much on the way. This type of author is best summed up in Tristram Shandy's description of the author of the great book on noses, Hafen Slawkenbergius, who "deserves to be *en-nick'd* as a prototype for all writers, of voluminous works at least, to model their books by—for he has taken in, Sir, the whole subject—examined every part of it dialectically—then brought it into full day; delucidating it with all the light which either the collision of his own natural parts could strike—or the profoundest knowledge of the sciences had impowered him to cast upon it—collating, collecting, and compiling—begging, borrowing, and stealing, as he went along, all that had been wrote or wrangled thereupon in the schools and porticos of the learned." And all this about the structure of a cystoscope and the ways the rays of light pass through it! The book is an example

[2] *Operative Chirurgie der Harnwege normale Anatomie und Chirurgische Pathologische Anatomie.* Von J. Albarran. Ins Deutsche übertragen von Dr. Emil Grunert. Erste und zweite Lieferung. Jena: Gustav Fischer. 1910. (Sup. roy. 8vo. Part I, pp. 1–320; Part II, pp. 321–720. M. 8 each.)

[3] *Traité chirurgical d'urologie.* Par Félix Legueu. Préface de M. le Professeur Guyon. Paris: Félix Alcan. 1910. (Imp. 8vo, pp 1389 F. 40.)

[4] *Das Kystoskop. Ein Studie seiner optischen und mechanischen Einrichtung und seiner Geschichte.* Von Dr. O. Ringleb. Leipzig: Dr. Werner Klinkhardt. 1910. (Roy. 8vo, pp. 204, 98 plates. M. 7.50.)

of a type which is most useful for reference and occasional consultation, and it must be frankly admitted that this minute attention to the details of structure and use of instruments is the reason why the Germans have taken the lead in teaching greater accuracy of diagnosis. During the past two decades the evolution of the specialist has been even more marked in surgery than in medicine, and one reason is the development of many instruments for the purpose of diagnosis, so complex that the effective use of each can only be obtained after considerable practice, and it has to be used continually before a correct interpretation of what is seen can be made. The interior of the bladder has been found of recent years to differ as much in appearance among normal individuals as the configuration of the face or the fundus of the eye. The surgeon who sees a urinary case but once or twice a week can never see enough normal bladders to be as sure of his diagnosis as the specialist who is looking down a cystoscope every day. We believe that, with the doubtful exception of the sigmoidoscope, every one of such instruments that have been introduced within this period has been originally devised by a German. We need only mention the examination of the bladder, endolaryngeal examination, and the more accurate examination of the auditory and vestibular apparatus to exemplify the point. This aspect of the genius of German surgery corresponds with their methods of organization in other spheres of activity. The definition of genius that it is an infinite capacity for taking pains, was, we believe, made by a German, but when applied to surgery it sometimes leads to the production of a very uninteresting type of book, far removed from that produced by the lighter and more brilliant genius of the French. We may well be grateful, in somewhat different ways, for both.

Mr. FRANK KIDD in the preface to his book, *Urinary Surgery*,[5] states that it is an attempt to review the progress of urinary surgery during the last decade. Although he does not put forward any claim to originality, yet it may fairly be said that he forcibly drives home the deductions he draws from reading, and from the standpoint of the most advanced school. The sources from which he derives much of his material are acknowledged in the preface by references to Kapsammer's work and the *Jahresbericht für Urologie*; with few exceptions authors' names are not mentioned in the text. The book is divided into five sections, dealing respectively with diseases of the kidney, ureters, bladder, prostate, and urethra. Most of the complaints to which these various organs are subject are dealt with, but in such a condensed form that the task of reading is sometimes irksome, and the meaning is involved. Among the omissions may be noted that no mention is made of the various fistulous communications between the urinary system and the intestines; congenital malformations of the bladder and penis; and inflammatory conditions of the urethra with their sequelae. Mr. Kidd throughout the book is obviously desirous of superseding, once and for all, most of the methods of examination which have been used in the past. He is an ardent upholder of the most modern mechanical appliances, not as adjuncts—to be used when more simple means have failed—but as substitutes to be employed in the daily routine. The ureteric catheter, the cystoscope, *x* rays, are all discussed and their free use advised for diagnostic purposes. To quote two instances from the text: "The cystoscope has replaced the sound almost completely"; "The catheter is not an instrument to be used routinely in diagnosis." He points out in glowing terms the advantage of these modern implements, but he says little about the failure of *x* rays—sins both of omission and commission—of the serious mischief arising (fatal cases are not unknown) after cystoscopic examination, and dismisses the argument that infection of a healthy kidney may follow ureteric catheterization in the following words:

> It is found by experience that if the bladder be first thoroughly washed out with oxycyanate of mercury (1 : 2,000) and the catheters passed quickly into the ureters without *touching the bladder-walls*, and if before withdrawal a drachm *of strong silver solution* be injected through the catheters, infection does not occur. [The italics are ours.]

Mr. Kidd is opposed to the use of the catheter in treatment, and condemns it—he is undoubtedly right—as the cause of much urinary trouble, notwithstanding its being passed with the "aseptic ritual" he advocates. Naturally, therefore, he advises the operation of prostatectomy even in the early stages of enlarged prostate. Throughout the book there is a tendency to separate the symptoms indicative of a particular disease from those superadded by secondary sepsis. Some of the dictums laid down as "golden rules" are apparently open to question, but as a book of reference with regard to the most modern ideas and for those studying for the higher examination it is undoubtedly a useful addition to the literature of urinary surgery.

In publishing this manual on lithotrity,[6] M. CATHELIN has made a still further addition to the many works he has from time to time written on urology. The volume consists mainly of dry technical details, relieved by many good and clear illustrations. The author, who has had much experience on lithotrity, and is well acquainted with his subject, is unable, from the nature of the case, to add very much to our present knowledge of an operative method the indications of which have long since been precisely laid down, and the results of which, in expert hands, have attained a very near approach to perfection.

SEXUAL PHYSIOLOGY AND PATHOLOGY.

THERE are many intelligent men and women who are coming to see that the attitude of Mr. Podsnap, who put away everything that he thought the "young person" ought not to know, is neither wise nor fair to the "young person." MRS. MARGARET STEPHENS is among them, and hence this book *Woman and Marriage*,[7] written by a wife and a mother for wives and prospective wives. It is stated in the preface that "ignorance and innocence are not synonymous; instructed innocence is not a contradiction in terms." Mrs. Barnett in her introduction remarks that "these matters have been for generations surrounded with an atmosphere of coarseness or superstition." Mrs. Stephens has quite lifted her subject out of the atmosphere of coarseness. But she has not wholly freed herself from the bondage of ancient doctrines. Thus, in the chapter on "physical hygiene and heredity" the reader is told "the sexual separation of husband and wife during the period of pregnancy is, as a general rule, as highly desirable as it is uncommon." Is the statement that it is "highly desirable" anything more than an *obiter dictum*? Mrs. Stephens tells us "that the child is influenced by the mode of life of the woman during pregnancy is a belief that is becoming more and more deeply rooted and widely spread." In a general sense this is a truism; but our author goes on to expound it, and tells us that the child's mental character is affected by any mental quality which its mother exercises during this period; that as she can "strengthen her own lungs" by proper treatment, and by the same treatment transmit to her unborn child *even stronger lungs than her own*, so can she cultivate any particular quality or virtue of character, and transmit it, *in an increased degree*, to her child. Here we cannot keep step with our author. We know not what "strengthening the lungs" means. That children's characters depend largely on their parents nobody disputes, but we are disposed to regard it as chiefly depending upon the stock, and upon the wisdom with which parents arrange the surroundings of their children while they are growing up, and very little upon what their mother was thinking during her pregnancy. One of the greatest educationalists of our time (we refer to Dr. E. A. Abbott) formulated the principle of sound education in some such words as these: "See that children's surroundings are healthy, and let them alone." We know from many object lessons that parents who by insistent preaching, punishment, bribery, and restraint, try to mould their children's characters to some type that they think better than the ordinary, often find the result to be what they did not

[5] *Urinary Surgery*. A review by Frank Kidd, B.M., B.C.Cantab., F.R.C.S., Assistant Surgeon to the London Hospital. London: Longmans, Green and Co. 1910. (Demy 8vo, pp. 445. 7s. 6d.)

[6] *Manuel pratique de la lithotritie*. By F. Cathelin, Surgeon-in-chief to the Hôpital d'Urologie. Paris: Vigot Frères. 1910. (Roy. 8vo, pp. 85; 145 illustrations. Fr. 4.)

[7] *Woman and Marriage*. A handbook by Margaret Stephens; with a preface by Dr. Mary Scharlieb, and an introduction by Mrs. S. A. Barnett. London: T. Fisher Unwin. 1910. (Post 8vo, pp. 296. 3s. 6d.)

expect. *Naturam expellas furca, tamen usque recurret.* This book is one excellent in taste and intention. The writer's judgement is not based on clinical experience to such an extent as is desirable, but the influence of the book will be good for Miss Podsnap, and its exaggerations will be corrected by the common sense of humanity.

Professor David Masson, in his erudite biography of John Milton, particularized the extraordinary freedom with which the physical functions of the body were spoken of in ordinary conversation, on the stage, and in literature as one of the features in which the Court of Charles II differed from that of the great soldier and Englishman who ruled England while Charles was amusing himself in Holland, and whose statue now stands in the open air near Westminster Hall. There is a proper mean in these things, between too great freedom on the one hand and too much reserve on the other. Too much reserve tends to provoke curiosity, and this curiosity is the incentive to the production and the sale of pornographic literature. Dr. KISCH describes his book, *The Sexual Life of Woman*,[8] as "a contribution towards the solution of the sexual problem, nowadays recognized as one of supreme importance." There are many sexual problems: the question of education, of marriage and divorce, of the limitation of families, etc., but which of these is the one "of supreme importance" we find it hard to decide. The author alludes to many; but the one which we take to be the justification of this publication is thus expressed (p. 35):

> The growing girl must not, as has hitherto been the case, be kept in a state of ignorance (which is indeed in most cases apparent merely) regarding the sexual processes of her own body.

We agree with Dr. Kisch in thinking it a wrong thing to allow a girl to be married without any information as to the physical function of marriage. The bride-elect should be given by her mother, or by a mother, not veiled hints, but clear, explicit, and full knowledge as to what she is to expect and what her duty is. It is desirable also that medical men should have, when their advice is asked concerning marriage, a clear vision of the fact that not all women are alike in the matter of sexual feeling. Many are devoid of it. Such a woman is happy and healthy as a spinster. If she marries for the sake of a home, or a name, without a deep and strong affection for her husband, her life is liable to be unhappy. On the other hand, some women have strong sexual feelings. If such a woman is early in life thrown among people who think much and talk freely about such things, or if she marries an impotent or exhausted crank, or a man who does not want children; or if after a short but happy married life she is early left a widow—then the constant struggle to repress her feelings and remain continent is likely to make her neurasthenic. But if she marries a young and vigorous man, who is not afraid of the burden of children, but welcomes each as it arrives, and pays no heed to the precepts of Dr. Blackwell and her followers, then the neurasthenia quickly disappears, and the woman will fulfil her functions in life with satisfaction to herself and happiness to those about her. In so far as the object of this work is to impress these things on the mind of the profession, we entirely approve it. There is little that is original in the book. The author heaps up quotations from other people's writings. Some of the persons whose opinions are quoted we know and are prepared to accept what they tell us. Others we know, and do not take the least interest in what they think, or rather, we should put it, in what they say. The book contains much unnecessary detail. The author has brought together a collection of anecdotes about perverse ways of gratifying the sexual instinct—mostly invented by hysterics and lunatics. It seems to us that the sole interest of such eccentricities lies not in the kind of eccentricity itself, but in the inheritance and the training (if these things are known) which produce such perversion; and these things are omitted in heaps of quoted stories such as we have here. The author is not always correct in his use of language. He says (page 347) that "dyspareunia" is the condition in former times known as "anaphrodisia." This is not so. "Dyspareunia" is a word which was coined by Dr. W. H. Stone, at the request of his colleague, Dr. Robert Barnes, who wanted a word to denote difficulty in sexual intercourse. "Dyspareunia" is constructed on the same principles as dyspnoea, dysphagia, dysuria, dysmenorrhoea, etc. Anaphrodisia may be present without dyspareunia. We give the author and translator credit for good intentions. We acknowledge that there is need among the public and medical men for more accurate knowledge as to certain physical functions than is at present generally diffused. But we cannot help feeling that the book is too prolix, and that it might with advantage have been expurgated.

Vigot Frères of Paris are the publishers of a series of volumes, thirteen in number, 3.50 francs each, which they call the library of sexual perversions. They have published also the work of a Swedish medical man, Dr. ANTON NYSTROM of Stockholm, on the sexual life and its laws.[9] We are told in an accompanying slip that the French translation arrived preceded by the noise of battle—that of Stockholm—and that the ideas of Nystrom excited a blustering coalition of all the traditional forces against his teaching. All honour to the Swedes, say we. Dr. Nystrom's work consists of five parts. First, forty-three pages on sexual desire and its natural and unnatural gratification. Then come chapters on the sexual customs of antiquity and the Middle Ages. The last chapter is on the evils of excessive fertility. The same subjects are again discussed in an appendix. Throughout the subject is illustrated by histories of badly brought up men and women, whose lives have been blighted and spoilt by some kind of sexual vice. There are far too many of these. Marriage laws and customs in different countries and at different times are interesting, but there are books in English—for example, that of Westermarck—which treat of this subject far more exhaustively. In short, Dr. Nystrom has no use for Sir Galahad as an ideal. He thinks the continent young man is the exception. The young woman is continent and healthy so long as she is ignorant and inexperienced; but when she has become accustomed to sexual gratification, continence is unnatural and a cause of ill-health. The economic consequences of these doctrines are to be avoided by the use of precautions against pregnancy. Such is the teaching of this book. We prefer Lord Tennyson's; and we hope this work, with its nasty histories of cases which are morbid and ought to be exceptional, may be left in a foreign language.

THE NIGER AND WEST SUDAN.

CAPTAIN TREMEARNE'S book is really remarkable in its way; the amount of information respecting *The Niger and the West Sudan*[10] that he has contrived to pack into a thin volume of moderate size is quite extraordinary. The external aspect of the book is startling; the print is rather small and close; and one certainly desiderates a map, for the absence of which, however, the author apologizes, and explains it on the ground of expense. The first section is devoted to history and statistics, the former including the somewhat melancholy stories of discoverers and explorers, gallant and ambitious men, mostly of British or German blood, of whom comparatively few survived to return to their native lands or to enjoy the fame or the more substantial rewards which their energetic labours deserved. The second section is mainly anthropological. The most interesting part of it is, perhaps, the account of the Fulahi, Fulbe, or Filani, as the author calls them, but the discussion of their origin and racial relations leads to nothing approaching certainty. Perhaps the most important point brought out is the statement of Lugard that they resemble in features and habits the Wahuma of East Africa. Both of

[8] *The Sexual Life of Woman, in its Physiological, Pathological, and Hygienic Aspects.* By E. Heinrich Kisch, M.D., Professor of the German Medical Faculty of the University of Prague, etc. Only authorized translation into the English language from the German by M. Eden Paul, M.D. London: Rebman Limited. 1910. (Roy. 8vo, pp. 697. 21s.)

[9] *La vie sexuelle et ses lois.* Par le Dr. Anton Nystrom de Stockholm. Préface du Dr. A. Marie. Paris: Vigot Frères. 1910. (Med. 8vo, pp. 368. Fr. 6.)

[10] *The Niger and the West Sudan: or, the West African's Notebook.* A vade mecum containing hints and suggestions as to what is required by Britons in West Africa, together with historical and anthropological notes and easy Hausa phrases used in everyday conversations. By Captain A. J. N. Tremearne, D.Anth.Cant., etc., Lecturer and late Hausa Scholar, Cambridge, etc. London: Hodder and Stoughton and A. H. Wheeler and Co. (Med. 8vo, pp. 151. 6s.)

them are pastoral tribes who lord it over agriculturists, the Hausa for example, though the latter seem to be capable of a wide range of occupations—agriculture, commerce, police or military duty. The Hausa are regarded as being elevated above the pure negro by a cross of Lybian or Egyptian blood, but such infusion is probably not very large. The author's instructions and hints as to health, medicines, and food, seem generally very good. He gives the clearest account of the Harmattan wind that we have seen. It blows from the Sahara in winter, when the sun is far away south, is very hot by day and extremely cold at night; it is refreshing to new comers; but veterans and natives suffer more in its season from fever, chest affections, sore eyes, and throats. The difference of temperature in the Harmattan season in Northern Nigeria may be as much as 45° between mid-day and midnight. The mortality among officials in that province is declining; in 1908–9 it was 25 per 1,000, besides 12.5 in England; and 96.2 were invalided, including we suppose the 12.5 just mentioned. Sleeping sickness occurs on the Benue River, but is apparently confined to small areas; blackwater is common and deadly. For those who, greatly daring, prepare to serve in West Africa, more especially in Nigeria, whether in a medical, civilian, or military capacity, one can hardly conceive of a better "guide, philosopher, and friend," than this little book of Captain Tremearne's.

NOTES ON BOOKS.

The *Festschrift*[1] or memorial volume in celebration of the fortieth anniversary of the foundation of the German Hospital, New York, is, like its homologues published in Germany and Austria, very well put together, consisting of instructive papers prepared by competent authors. Its best feature as a novelty is the character of its numerous drawings of operations, morbid structures, microscopic sections, and hospital wards. They are printed in a delicate light-brown tone, and look much more natural than similar drawings familiar to us in the pages of many first-rate European and American works where the tint is ashy-grey, so that solid viscera look too much like cinders or clinkers. The monographs, like the title and preface, are bilingual. "Die Aerzte des deutschen Hospitals und Dispensary" dedicate their publication to their well-known institution, and whilst most of the articles are written in German, some are in English. The hospital does good work; its fight against tuberculous phthisis in New York forms the subject of a special memoir by Dr. Breitenfeld. All the main divisions of medical art and science are represented in the *Festschrift*, including radiotherapy.

The Society of Medical Phonographers is publishing a small library of medical compendiums for the use of its members, printed in shorthand. The fifth volume[2] of the series is divided into two sections, the first dealing with blood diseases, the second with pathological histology. For those in search of this sort of book it is, no doubt, just the volume they require, and may therefore be warmly commended to their attention. Its printed matter and longhand leave little to be desired.

The fact that PENZOLDT and STINTZING'S handbook of therapeutics has reached a fourth edition[3] is a proof that it has received an exceptionally favourable reception from the readers for whom it is intended. The book is written with true German thoroughness and comprehensiveness. The arrangement is somewhat confusing, though less complicated than some of the encyclopaedic works on medical subjects which come from the press in Germany in such numbers that one wonders where they find purchasers. The ninth, tenth, eleventh, and twelfth *Lieferungen* now before us include the treatment of diseases of the heart and blood vessels, of the kidneys, of the male organs of generation, venereal diseases, diseases of bones and joints, spinal deformities, rheumatism, diseases of the lymphatic system, of the lungs, of nervous diseases, and diseases of the bladder. There are chapters on massage, on diet, on sea bathing, on climatology, etc. The work is a vast storehouse of facts of every kind relating to the treatment of disease.

The *Medical Annual*[4] has now made its twenty-ninth appearance and presents in the edition for 1911 no very new feature. For this fact those with whom the book is a favourite will probably be thankful. They are familiar with the excellent arrangement of previous editions and have learnt how to obtain promptly any information they desire should it be contained in this yearbook and practitioner's index, to use the sub-title of the work. But even the man who consults it for the first time can have no difficulty in making use of its resources. Part I, called the dictionary of remedies, contains a summary of new therapeutic ideas, followed by articles on certain subjects such as radiology and electro-therapeutics, hormones, and the Pharmacy Act. Part II, known as the dictionary of treatment, reviews medical and surgical progress under alphabetic headings relating to various diseases, symptoms, and symptom complexes. Part III consists of short accounts of various medical and surgical appliances brought out during the year under review, information regarding the principal medical publications during the year, and institutions for the care of the sick, including private asylums, sanatoriums, and nursing homes, and other like matters. The volume contains a good many photographs and illustrations in colour, and, as usual, is thoroughly well turned out. The amount of ground which it covers is fairly well indicated by the general index which contains upwards of 4,000 entries.

THE *Dentists Register* for 1911[5] has just been issued. It appears that it now contains 4,883 names; of these, 4 are those of persons holding colonial, and 19 of persons holding foreign, qualifications. The number of United Kingdom dentists is 4,860, and of these 3,124 are graduates or licentiates in dental surgery of universities and colleges in the United Kingdom. There are 11 persons registered on their own declaration as in bona-fide practice of dentistry before the appointed day who possess surgical qualifications, and 1,725 who have no qualification. It would thus appear that the percentage of persons without qualifications from a university or college has declined from 38.68 in the *Register* for 1910 to 35.32 in the *Register* for this year.

[1] *Festschrift zur vierzigjährigen Stiftungsfeier des deutschen Hospitals.* Herausgegeben von dem Medical Board im Auftrage der Aerzte des deutschen Hospitals und Dispensary der Stadt New York. New York: Lemcke und Büchner. 1909. (Roy. 8vo, pp. 593.)

[2] *The Microscopical Diagnosis of Diseases of the Blood and of Pathological Tissues.* By O. C. Gruner. Vol. v of the Phonographic Medical Library. London: Geo. Pulman and Sons. Limited. 1910. (Fcap. 8vo, pp. 63; 1 coloured plate. 2s. 6d.)

[3] *Handbuch der gesammten Therapie in Sieben Bänden.* Herausgegeben von Dr. F. Penzoldt, Professor in Erlangen, and Dr. R. Stintzing, Professor in Jena. Verlag von Gustav Fischer in Jena, 1910. (Price of complete work, M. 100.)

[4] *The Medical Annual.* Twenty-ninth year. 1911. Bristol: John Wright and Sons. (Demy 8vo, pp. 828. Price 8s. 6d.)

[5] London: Spottiswoode and Co. (3s. 4d.)

MEDICAL AND SURGICAL APPLIANCES.

A Microscopical Lamp.

PROFESSOR E. EMRYS-ROBERTS (Cardiff) writes: I enclose a photographic print of an electric lamp for microscopical purposes. The design has been carried out for me by Messrs. Herb. Lewis and Fletcher, consulting electrical engineers, Cardiff, and I understand that its component parts are all stock fittings, so that the cost of production is reduced to a minimum. The foot is brass, and is heavily weighted, and covered beneath with baize. The upright portion is brass tubing bent to accommodate the lamp itself; at the top is a screw-nut, making it possible to adjust the lamp to any required angle. The lamp shade is made of nickel-plated metal, parabolic in design. The source of light is an Osram lamp, frosted below. This type of lamp-fitting has been adopted in the new Pathological Institute, and is extremely satisfactory in every way. It is compact and efficient, and I can thoroughly recommend it.

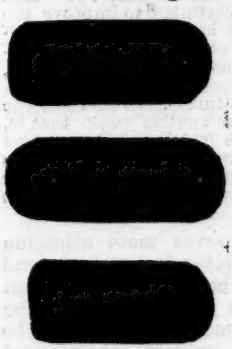
A One-Flash Apparatus for Radiography.

Instantaneous radiography is now a thing accomplished. The practicability of an *x*-ray exposure of one-tenth of a second has been demonstrated during the last year or two, but even such an exposure is outdone by a "one-flash" apparatus bearing the name of "Dessauer," which is on

view at the show-rooms of Messrs. Newton and Co. (3, Fleet Street, E.C.). With this apparatus the exposure can scarcely be measured by time intervals; it is equivalent to one single discharge through the tube, occupying perhaps one-hundredth of a second. The new apparatus appears to be simply the logical outcome of modern development in induction coils, and the lightning radiography in this instance is made possible by the employment of a very large coil of special construction through which a heavy continuous current is passed. The bursting of a special fuse, which is readily renewable at a trifling cost, causes the break which provides the powerful single flash. In some excellent radiographs taken with this apparatus and an intensifying screen small pathological changes in the lungs were visible, and the heart outline was beautifully rendered. Of a pattern with this arrangement and bearing the same trade-name is a mercury interrupter on the centrifugal principle, with some interesting modifications.

A Simple Test for the Efficiency of Sterilization.

Mr. ERNEST W. HEY GROVES, F.R.C.S. (Bristol), writes: One of the great drawbacks of the modern high-pressure steam sterilizer is that it is necessarily somewhat complex and liable to get out of order without giving any readily noticeable change in the things taken from it. If it should be in the charge of a nurse or porter who does not properly understand it, or who is not very conscientious in working it, the whole mechanism may be at fault without any one being aware of the fact. The dressings and swabs look just the same as ever, and are handed to the surgeon—it may be hot from the machine—and yet only the outer coverings have been warmed, and no penetrating sterilization has taken place. This danger occurs especially at small hospitals or nursing homes, where a small instrument is used and often worked by different nurses. The things are put into the machine, the gas or steam is turned on, and in a certain time they are taken out. The exact fitting of the door of the oven, the attainment of a definite pressure, the proper working of the vacuum apparatus, are matters which do not appeal to the average nurse's mind as being very important. And yet these are the essentials without which we might just as well take our things straight from the laundry, use them for operations, and let the tissues find out for themselves whether they contain any bacteria. The great expense and trouble necessitated by dry sterilization are well worth while if only we can readily make sure that everything has been carried out without a flaw. I have devised a simple contrivance for carrying out an efficient test of proper sterilization which meets this need. A compressed tablet is made containing 10 grains of acetanilide, in the centre of which is a minute quantity of methyl blue. This is enclosed in a small glass capsule about 1 in. long. Acetanilide melts at a temperature of 112° C., and it takes about fifteen minutes' exposure to this temperature to melt the 10 grain tablet sufficiently for the whole mass to become uniformly mixed with the blue colour. Hence the capsule provides both a qualitative and a quantitative test of temperature. If it is placed in the centre of a large mass of dressings, and after sterilization it is found to have its contents completely fused into a homogeneous mass, it is a proof that the very centre of the dressings has been raised to a temperature of at least 112° C., and that this has been maintained for at least a quarter of an hour. For private work it is a great convenience to have a set of dressings, towels and swabs, gowns and gloves ready sterilized for any emergency. Such an outfit can be contained in a single canvas bag lined with cotton-wool; or better still can be arranged in two such bags. These are tied together, having a mass of cotton-wool, containing one of the capsules I have described, in its midst, between the two bags. Done up in this way they are given to the nurse to sterilize, and when they are returned, the bags are separated, the capsule taken out, and the efficiency of the sterilization positively ascertained. Up to the present I have only been able to obtain the capsules at a price of 2½d. each, but if their use should be adopted extensively I feel sure that some reliable druggist will be found who will be able to supply them at much lower price.



1, Original capsule; 2, after raising to 112° C. for five minutes; 3, after raising to 112° C. for fifteen minutes.

THE SWEDISH SYSTEM OF REMEDIAL EXERCISES AND MASSAGE AS A MEANS OF TREATMENT.

HAVING determined to test the beneficial results accruing from the Swedish mode of treatment, I spent several months in Stockholm studying medical gymnastics and massage under Professor Wide and Dr. Arvedson, while at the same time I took part in the pedagogical work carried on at the Royal Gymnastic Central Institute. At that place I found that one hour's daily practice with the young army officers improved one's own physique in a very surprising and pleasurable manner. The course planned out there for the students is a very thorough and detailed one, its length being two years for women and three for men. The latter must take military gymnastics in addition, which consist in fencing with the foil and sabre, bayonet exercise, riding, and other military exercises.

Daily instruction in anatomy, practical anatomy, physiology, elementary pathology, and the theory and practice of medical gymnastics is given by the teachers. All students must take the pedagogical or educational gymnastics. There are separate classes for each year. The juniors begin with the easier movements, which gradually increase in severity, strength, and complication. When they become seniors—that is, in their second year—they commence where they left off the previous year, the exercises becoming increasingly difficult and strong, balancing movements being introduced.

To secure that the exercises shall be of a progressive nature and definite order—characteristics of the Swedish system—the programme is changed every week. Thus every Monday the aspirant for the title of Gymnastic Director looks forward to a new set of exercises to be practised for that week.

The order of a table is:

1. Introductory exercises, facings, and class formations.
2. Leg exercises.
3. Span bending, or arch flexions of the trunk.
4. Heaving exercises to increase respiration.
5. Balancing exercises, requiring high powers of co-ordination.
6. Dorsal exercises, giving a good carriage to the shoulders, and at the same time increasing respiration.
7. Abdominal exercises, which strengthen the muscles of the abdomen, thereby correcting any tendency to pot-belly. They assist the digestive organs in their work, preventing constipation, and tone up the natural support of the viscera.
8. Lateral exercises. These give suppleness to the carriage of the body, are powerfully corrective as regards the spine in both lumbar and dorsal regions, ensuring flexibility and assisting to counteract tendencies to lateral curvature. These movements, if persevered in, tend to reduce the waist measurement and any tendency to corpulency. (The Swedish army officers have probably the smallest waists of any class of men in Europe.)
9. Marching, marching on the toes, and running exercises. These educate the body to a free and easy motion in walking, to proper movements of the hips, and the correct manner of lifting and placing down the feet.
10. Jumping and vaulting. All the muscles of the body are brought into play from these exercises. They perfect resource and courage, presence of mind, and quickness of movement.
11. Finishing exercises, which always comprise those of breathing.

Each student must devote at least three hours daily to the patients, of whom he has one or more coming daily for treatment. The patient is first seen by a physician, who writes a gymnastic prescription for one of the students to carry out.

In diseases of the circulatory organs medical gymnastics have proved of marked service in mitral incompetence and stenosis, aortic incompetence, dilatation and hypertrophy of the heart, chronic myocarditis and fatty heart. Ling himself taught and used movements and massage for the circulation. A systematic programme is gone through, consisting of regulated movements and massage, beginning with the lower extremities. In a case of diffused cyanosis, shortness of breath, oedema of the extremities, and even albuminuria disappeared after only a fortnight's gymnastic treatment. Remedial gymnastics are of great use during the time that compensation of the heart is developing.

Medical gymnastics are a powerfully prophylactic agent in some diseases of the lungs, in that they help the expansive power of a badly-shaped chest and increase the interchange of gases in the lungs. Such common

maladies, as chronic bronchitis, asthma, emphysema, adhesions after pleurisy, and croupous pneumonia, are often benefited by a course of exercises.

In disease of the digestive organs medical gymnastics and massage play a very important part. They are a specific in chronic constipation. Medical gymnastics are usually all that is needed to effect a cure, but in some severe cases they should be combined with thorough abdominal massage. To cite only one case of Wide's:

Intestinal Atony with Resulting Constipation.

A man aged 73 had suffered from chronic constipation for many years. Laxatives and enemata had but little effect, but kneading and effleurage along the colon easily dislodged the faecal masses. He was treated daily with abdominal massage, sacral beating, and knee up-drawing and down-pressing, etc. The faeces soon became formed and soft, and were passed without trouble after the nervous innervation had been toned up and the intestinal muscles strengthened by abdominal massage. The improvement continued for some years afterwards, the patient having natural daily stools.

Medical gymnastics and massage have proved of service in catarrhal conditions of the digestive organs, dilatation of the stomach, chronic diarrhoea, prolapse of rectum, haemorrhoids, congestion of liver, and pruritus ani; while the effect of this system of reducing obesity has long been known.

In the special infirmary for nervous diseases in Stockholm medical gymnastics and massage are extensively used with good results.

Locomotor ataxia, progressive muscular atrophy, and anterior poliomyelitis have been the diseases chiefly treated with gymnastics and massage. In chorea, tremor, and tabes dorsalis, where there is inco-ordination, remedial movements are of great importance, especially double-sided ones. Gymnastic treatment has been of marked value in diseases of the motor nerves, paresis, cramp, and neuritis, and in neuralgia and anaesthesia (sensory nerves). The following case, related by Wide, may serve as a lesson:

Right-sided Posterior Interosseous Nerve Paresis.

A man aged 29 was treated in 1891. The paresis had showed itself in November, 1890, after fracture of the lower end of the humerus involving the nerve in a callus formation, and the nerve itself showed reaction to degeneration. Gymnastic and massage treatment was given twice daily for twenty-eight days, the aim being the absorption of callus in the first place, and mechanical nerve irritation in the second place. This was so far satisfactory that the patient was able to resume his occupation (clerk).

This case is of special interest on account of the rapid improvement which took place, and of the fact that, though the nerve did not respond to electrical stimulus, it did to mechanical excitation.

Sciatica has yielded good results to movements and massage. One clinical case treated by me under Professor Wide:

The patient was a woman aged 35; the treatment given was deep friction massage and strong effleurage for an hour daily for about thirty days, and a Tallbarrsbad (pine-leaves bath) every other day. In addition to this, active and passive movements for the sciatica were also given, such as active nerve-stretching in various ways—for example, at the peg-post, etc. With this treatment the patient rapidly improved, and at the end of the cure she confessed to "feeling very much better," and, as she expressed it, "felt lighter, and as though a lot of stuff had been squeezed out of her."

Movements and massage in cases of recent fracture, distortions, dislocations, acute synovitis, stiff joints, etc., have been advocated chiefly by Sir William Bennett in this country and M. Lucas-Championnière in France. Stockholm surgeons begin massage immediately after the occurrence of the injury, or as soon as the swelling begins to subside. With simple fractures, say of the radius, the bandage is removed, when gentle effleurage and passive movements are given daily for the wrist and finger joints. The gentle stroking movements given over the muscles in the region of a fracture greatly allay the pain or spasm set up by the contracted muscles. In the like manner with sprains—for example, in the ankle-joint—passive movements and massage help the stagnant circulation and prevent the formation of adhesions and consequent stiffness.

Swedish gymnastics have played a prominent part in the treatment of deformities, such as lateral curvatures of the spine, kyphosis, sloping and uneven shoulders, lordosis, or pot-belly, in the different varieties of talipes or club foot, in genu valgum, genu varum, genu recurvatum, and in torticollis. Perhaps more remarkable successes have resulted in lateral curvature than any other complaint. The object is to increase strength and development, and at the same time to shorten the muscles on the convex side. Massage of the back muscles must be given at each treatment. In Sweden three examinations are made yearly of public school children for the detection of incipient scoliosis. In this way early cases are found and the child put under proper gymnastic training without delay. Swedish medical gymnastics aim at increasing the mobility of the spine, the straightening and stretching it, checking of deformities of the chest and spine, and improvement of the general constitution through the development of the muscles, ligaments, bones, and joints.

As an illustration of the beneficial method of the treatment, two examples may be given; the first case was reported by Wide, and the second treated by myself in Dr. Arvedson's clinic.

1. *Right Convex Scoliosis in a Boy 14 Years Old.*—The vertebral column showed a deviation of 16 mm. in the middle dorsal region, the rotation was not inconsiderable, and the spine was freely mobile. The patient was preparing to enter the Naval College, and would have been rejected had not his deformity been cured. He could only sacrifice twenty minutes daily for gymnastics, but industriously practised home movements, and consequently succeeded after only four months' treatment in being accepted as without defect at the above school.

2. *Right Convex Lumbar Scoliosis, Left Convex Dorsal Scoliosis.*—A small, badly developed, thin and knowing child of 8 years, who looked older than her age. The dorsal deviation shown by Schulthess's apparatus was 18 mm. and the lumbar 21 mm., the spine being fairly flexible, but more so in the dorsal than in the lumbar region. For the first two weeks the patient had a general gymnastic treatment to improve the general health and prepare her for the harder and more complex movements to meet her individual case. At the commencement of the third week special movements were given, together with massage of the back muscles at the beginning, and also at the termination of each treatment. In this way she rapidly improved, for at the end of the twelfth week, that is, ten weeks since the special movements had begun, the dorsal deviation measured 7 mm. and the lumbar 11 mm; it will be observed that the dorsal curve improved more than the lumbar in proportion. As the child had to leave Stockholm and the treatment had to be discontinued, this case was lost sight of.

I think that this treatment deserves more attention from the profession than it has hitherto received, and that a special department should be inaugurated in all large general hospitals and certain special ones for the carrying out of this treatment by medical students who have received instruction in the subjects of medical gymnastics and massage. At the present moment there is only one large general hospital I know of in London which has a special department of this nature and presided over by a qualified medical man who has received the necessary training in this work.

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FREDK. F. MIDDLEWEEK, L.R.C.P., L.R.C.S.Edin.

THE Canadian Red Cross Society, which was founded in 1896 and reorganized and incorporated some two years ago, is now fully affiliated to the British Red Cross Society, and will do its work on corresponding lines. The society has its head quarters at Toronto, and its report for 1910 shows that good progress is being made with the formation of branches in the various provinces of Canada. Tribute is paid in the report to the excellent work done for the society by Dr. Charles A. Hodgetts, who acted as its general secretary for many years. He has now been succeeded by Dr. Charles R. Dickson.

THE Vigilance Committee of the French Congress of Medical Practitioners has decided to send the following questions to the medical syndicates throughout the country: (1) Number of practitioners in your medical area; increase or diminution during the last twenty years? (2) Population; increase or diminution during the last twenty years? (3) Is there overcrowding of the profession in your medical area? (4) How is limitation to be effected? Competitive examination for admission as students of medicine. Examinations at the beginning of the curriculum. Examinations during the course of study; preliminary examinations; what examinations for the degree of bachelor (arts and science)? Personal observations.

THE PURITY OF FLOUR AND BREAD.

THE important subject of the purity of flour and some other materials used in baking has been engaging the attention of the medical department of the Local Government Board for some time, and three reports which have just been issued as Parliamentary papers give the results of their investigations of certain parts of the subject. These reports are "On the Bleaching of Flour and the Addition of So-called 'Improvers' to Flour," by Dr. J. M. Hamill; "On the Chemical Changes Produced in Flour by Bleaching," by Dr. G. W. Monier-Williams;[1] and "On the Presence of Calcium Sulphate in Baking Powder and Self-raising Flour," by Dr. J. M. Hamill.[2] The bleaching of flour, with its supposed advantages and probable disadvantages, is dealt with at greatest length, and much important information is made available for the first time.

It is well known that a large part of the wheat supply of the United Kingdom is derived from other countries; according to the figures given in the first of the reports before us, the average yearly quantity of wheat produced in these islands from 1903 to 1907 was about 6½ million quarters, the average yearly imports for the same period being 26½ million quarters. The principal outside sources of supply are Argentina, Russia, the United States, Canada, India, and Australia, but many other countries in both hemispheres contribute a share. At the same time the quantities of wheatmeal and flour that are imported are considerable; in 1909 these imports amounted to 11 million cwt., against 98 million cwt. of wheat brought in.

One result of drawing our supplies from all over the world in this way is that freshly harvested wheat is available all the year round, since the wheat harvest naturally occurs at different times in the year in different countries; another and more important result is that the British miller and baker have a great range of choice in the varieties of wheat flour which they can employ, and by judicious blending in accordance with the results of experience are able to produce and use flour which combines the advantages resulting from growth under different conditions of climate and soil, and which is in many ways superior to the product of any one country or one variety of wheat.

A point of the greatest importance which arises in this connexion—one which must constantly be borne in mind in the consideration of the treatment to which flour is subjected—is that superiority of flour may be judged from two points of view which do not necessarily, or even probably, lead to the same conclusions; to the baker, and therefore usually to the miller, that flour is best which will give the largest yield of the most attractive bread, but to the public that flour is best which will give bread having the greatest dietetic value. It is not necessary to add that the latter point of view is the one that must be taken by a public authority.

Up to a certain point the value of a flour to the baker coincides with its value to the public, but beyond that point there is a serious divergence. The superiority of wheat, from the dietetic point of view, to other starch materials, is due partly to the gluten, partly to the phosphorus compounds. It is the presence of gluten in sufficient quantity which makes wheat superior to barley, maize, rice, etc., for the production of bread, while the phosphorus compounds appear to play a part, though one which is less understood, in this same quality. Gluten, however, consists of two substances, glutenin and gliadin, and the bread-making quality depends chiefly on the presence of a sufficiency of the latter, while there appears to be no evidence that it is superior to glutenin as an article of consumption. There is reason to believe, also, that the value of gluten to the baker in the production of bread may be increased by the judicious addition of certain inorganic phosphorus compounds, which it is safe to say are not of equal value (if indeed of any) to the natural phosphorus compounds of the wheat, when regarded as a source of the phosphorus required in the body.

The bleaching of flour has been recommended for the sake of certain advantages which it is supposed to give the baker, and it is also fairly evident from the report that certain pecuniary advantages that may be reaped by the miller have helped to bring it into use. No serious claim has been made that the flour or bread is in any way improved to the consumer, unless on the very doubtful aesthetic ground of the appearance of the bread, while the careful investigation recorded in these reports gives good reason for believing that it may have a distinctly harmful effect.

Bleaching.

In the very elaborate processes of modern flour milling the final product is separated into various grades, the finest of which is usually the whitest. The degree of whiteness, however, depends also to some extent on the variety of wheat employed. English wheat yields a flour which gives an excellent flavour to the bread into which it enters, and which is also whiter than many other flours. Further, storage of flour for one or two months improves its baking qualities, and at the same time increases its whiteness. For all these reasons white flour and white bread have come to be regarded with greater favour than darker varieties; bleaching is largely a means of conferring this desired whiteness on flours which do not naturally possess it, though it is also employed on high-grade flour to render it even whiter. The practice originated in this country only about ten years ago, and it has now become very general, though it is by no means universally adopted.

The only process for bleaching which has come into much use, and the only one which is discussed in these reports, consists in bringing the flour for a short time into contact with nitrogen peroxide gas (NO_2). The gas is produced in various ways, but such variations do not affect the essential part of the bleaching. Excessive exposure to the action of the gas causes obvious deterioration of the flour and increases instead of diminishing the colour; care is accordingly taken that the action shall not proceed to such a point, but within this limit there appears to be room for very great differences in the extent to which the action is allowed to proceed, and it was not found possible to obtain accurate information as to the proportion of nitrogen peroxide generally employed. It is asserted by some that bleaching increases both the "strength" and the water-absorbing capacity of the flour—that is, that it enables the baker to make more bread from a given quantity of flour, the bread being also commercially better; the increased quantity of bread is, of course, secured by giving the consumer a larger quantity of water in each loaf. But, after collecting the evidence obtainable on the matter, Dr. Hamill comes to the conclusion that

> it seems probable that bleaching, when carefully carried out, produces no appreciable effect upon the baking qualities of flour.

The advantage to the miller, however, is considerable:

> There can be no doubt that bleaching is capable of improving the colour and therefore the commercial value of the lower grades of flour.
>
> That this improvement represents a pecuniary gain to the miller is evident . . . it is said that a saving of 6d. to 1s. per sack may thus be effected by the miller.

The conclusion of this part of the inquiry is thus that the only advantage resulting from the bleaching of flour is a commercial one, which is secured at the expense of the public by enabling a lower-priced article to simulate the appearance of a higher-priced one.

On the important question of the changes which occur in flour in the bleaching process, and their probable effect on the consumer of bread, it was found necessary to supplement the information obtainable, by direct research. The yellowish colour of flour is due to an oil which exists as a very thin layer surrounding each granule of starch. When this oil is acted on by the nitrogen peroxide its chemical composition is altered, the iodine-absorbing capacity being reduced and some nitrogen becoming combined with the oil. Apart from this change, an almost constant character of bleached flour is the presence of a substance giving the reactions of nitrite, which can be extracted and estimated by suitable treatment. The amount which has been extracted from different samples of bleached flour, calculated as sodium nitrite, has varied from mere traces up to 40 or more parts per million parts of flour. The proportions found in samples of flour sold

[1] Cd. 5613, price 3½d. To be purchased either directly or through any bookseller from Wyman and Sons (London), Oliver and Boyd (Edinburgh), and E. Ponsonby (Dublin).

[2] Cd. 5614, price 1d. To be purchased either directly or through any bookseller from Wyman and Sons (London), Oliver and Boyd (Edinburgh), and E. Ponsonby (Dublin).

in this country, however, did not show such wide variations. Out of 157 samples examined by public analysts and others, 40 were reported to be free from nitrite and the rest contained from 0.5 to 4 parts per million, while out of 70 samples of imported flour examined by Dr. Monier-Williams 13 were free, and the remainder contained from 0.5 to 4 5 parts per million. The presence or absence of nitrite affords the surest evidence as to whether a sample of flour has been bleached. It is stated in the report that

for practical purposes it may be presumed with some probability that when more than one part of nitrites per million is present the flour has been bleached; with quantities much above this the inference of bleaching amounts to practical certainty. On the other hand, when flour has been submitted to the Griess-Ilosvay test and has been found free from nitrites, there can be little doubt as to its being unbleached.

The amount of nitrite-reacting material present in flour, however, is not necessarily any criterion of the degree of bleaching or of the amount of nitrogen peroxide which may have been absorbed by the flour. And when bleached flour is made into bread, from one-half to two-thirds of the nitrite disappears, while an increase in nitrates is said to occur, as might be expected. Dr. Monier-Williams found that as a result of bleaching the solubility of both the protein and the carbohydrate of the flour was increased, showing that chemical changes had taken place in these.

It is pointed out that great difficulties beset the experimental investigation of the effects of small amounts of nitrogen peroxide, such as are used in bleaching, on the health of the consumer. The most probable effects would appear to be due to interference with digestion. Halliburton has found that traces of nitrites exert a distinct inhibiting effect on both proteolytic and amylolytic enzymes, one part of sodium nitrite in 8,000 inhibiting peptic digestion entirely, while one part in 32,000 decreased the activity of the enzyme to one-seventh of its normal activity; similar results were obtained in the case of the salivary digestion of starch. Hale has found that sodium nitrite in a dilution of one part in 5,000 to 200,000 has a distinct inhibitory action on gastric digestion. Some experiments on this point, carried out at the Lister Institute by Dr. A. Harden, showed a decided, though small, inhibition in the peptic digestion of samples of bleached flour as compared with unbleached. Feeding experiments on cats and rabbits made by the same investigator with an extract from bleached flour did not show any effects attributable to the latter. It is pointed out in the report that other effects of nitrite than interference with digestion are quite likely.

As regards the action of nitrites on the system, it should be remembered that nitrites, when administered as drugs, produce various effects, amongst which disturbance of the heart and vascular system are prominent. The amounts of nitrite introduced by bleached flour would be of a much lower order than those taken when nitrites are given medicinally. Statements have been made, however, by medical practitioners that an appreciable effect may be produced by quite small doses of nitrite. Gustav Mann points out that quantities such as half a grain (32 mg.) of nitrous acid may be harmful to some individuals. What may be the physiological or pathological effect of ingestion of even smaller doses when taken day by day throughout many months or years it is impossible to say; there is no evidence on the matter, and it would be very difficult to obtain any. It cannot, however, be regarded as desirable that minute doses should be ingested day by day of a drug which in larger single doses has a marked action on the vascular system.

It is held that there is no compensating advantage to the consumer, and the conclusion arrived at is thus expressed:

Looking to the above considerations, it may be concluded that the alterations in, and the additions to, flour which result from a high degree of bleaching by nitrogen peroxide cannot be regarded as free from risk to the consumer, especially when regard is had to the inhibitory effect of the bleaching agent on digestive processes and enzymes.

"*Improvers.*"

The so-called "improvers" which are in use as additions to flour, usually in the proportion of 1 to 2 lb. to each sack of 280 lb. of flour, were found to consist essentially of phosphoric acid or acid phosphate of calcium, magnesium, potassium, etc. The claim made for these is that more bread can be obtained per sack of flour by their use, which, as pointed out above, means that more water can be supplied to the consumer at the price of bread. It is asserted of one such "improver" that from ten to fourteen extra 2 lb. loaves can be obtained from a sack of flour by its use, and of another that it improves the "strength" of the flour to the extent of at least 1s. 6d. per sack and the colour by 1s. per sack in value.

In addition to such compounds, patents have been taken out recently for treating flour with phosphorus trichloride, pentachloride, or other halogen compounds of phosphorus, or with a mixture of these and sulphur trioxide, nitric acid, nitrous acid, iodic or other halogen acids; also formic, acetic, propionic or benzoic acids, alcohol, aldehydes, or ketones, with the object of "strengthening" the flour and improving its baking qualities; other chemicals which it has been proposed to use include phosphorus pentoxide, phosphorus bisulphide, and phosphorus pentasulphide.

On the subject of "improvers" generally, Dr. Hamill points out that, first, there is no evidence in support of the contention sometimes advanced, that they increase the organic phosphorus compounds present, and, secondly, that the formation of such compounds in this way is contrary to experience. Their effect in increased loaf production, from a given quantity of flour, is one that will appeal only to the miller and baker. The serious risk of actually deleterious substances being introduced into bread in this way is referred to, and it is added:

It must also be remembered that the addition of foreign substances may not be limited to the miller, but that each person through whose hands the flour passes (for example, the flour factor and the baker) may add to it a different substance or more of what the miller has added. In this way flour, when it reaches the consumer, may have departed considerably from its original state of purity.

The report does not include any specific recommendation for legislation in regard to the bleaching of flour or the addition of foreign substances. It is probable, however, that the present state of the law would permit of successful prosecution for such acts, the onus being on the prosecution to prove that the consumer was being supplied with an article other than and inferior to that demanded. In proving this to be the case the present report would naturally be of the greatest value. The bleaching of flour is already prohibited in Switzerland. In certain of the Australian states bleached flour is excluded by the official definitions of what may properly be described as flour; while in the United States the Board of Food and Drug Inspection has unanimously decided

that flour bleached by nitrogen peroxide is an adulterated product under the Food and Drugs Act of June 30th, 1906, and that the character of the adulteration is such that no statement upon the label will bring bleached flour within the law.

Baking Powder and Self-Raising Flour.

The question of the presence of calcium sulphate in baking powder and self-raising flour, which is dealt with in a separate report, is a much simpler one. Baking powder consists essentially of sodium bicarbonate together with an acid substance (cream of tartar, tartaric acid, calcium acid phosphate, etc.) which will liberate carbon dioxide from it when water is added, and so cause "rising" of the bread or pastry which is made. "Self-raising flour" is merely flour containing these essential elements of baking powder. The use of calcium acid phosphate in place of cream of tartar or tartaric acid has greatly extended in recent years, chiefly on account of its lower price; and since this substance often contains a large proportion of calcium sulphate, the latter, which is at best valueless and therefore undesirable, may be consumed with food to quite a considerable extent.

Commercial calcium acid phosphate contains from under 5 up to as much as 50 per cent. of sulphate; the higher proportions are caused by the acid phosphate being made by the addition of sulphuric acid to bone-ash (neutral calcium phosphate), whereby a cheaper product is obtained than when the bone-ash is treated with phosphoric acid. Dr. Hamill recommends that a maximum limit of 10 per cent. of calcium sulphate in calcium acid phosphate should be fixed, and that no such material, or baking powder or self-raising flour prepared from it, should be sold under any name which implies that it is a preparation of cream of tartar or tartaric acid; and that local authorities under the Sale of Food and Drugs Acts should cause examinations to be made of the acid phosphates, baking powders, and self-raising flours being sold in their districts, and should institute legal proceedings where necessary to prevent the presence of an undue proportion of sulphate in such materials.

PREVENTIVE MEDICINE IN THE TROPICS.

REPORT OF THE GERMAN COLONIES.

THE Medical Report for the German Colonies for the year 1908–9[1] contains a fine record of the clinical and hygienic work carried out by the medical staffs of the different colonies during the year. The voluminous clinical notes, especially those dealing with the treatment of tropical diseases, are well worthy of perusal by anyone interested in the treatment of any particular disease, but the most interesting portions of the report are those dealing with preventive medicine in tropical colonies. Realizing that no colony could be prosperous without a plentiful supply of healthy native labourers, the German Government has spent considerable sums of money on the scientific investigation of the epidemic diseases in each colony, and is now systematically applying the knowledge so gained to stamp out these scourges of the native population. Measures are also being taken to protect the Europeans living in the colonies. The measures adopted in German East Africa, of which we give a summary, show the lines on which the German Government is working.

The following diseases, which in the past have caused most loss of efficiency or lives, were combated as detailed below:

Small pox.

In recent years only isolated cases of small-pox had occurred in the colony, but in the year covered by this report there were a number of small epidemics, in which, however, only natives were attacked. It is worth noting that the natives in many of the districts try to protect themselves against small-pox by inoculation, carried out as follows: they express the contents of a small-pox pustule, mix this with some native "medicine" to diminish the virulence, and then rub it into a small incision in the left arm or forehead. In some cases only a local pustule at the site of inoculation was produced, but in others, especially children, the practice was followed by a mild attack of small-pox.

The preventive measures adopted by the German authorities were the isolation of persons suffering from small-pox, and, as far as possible, vaccination of the whole population. In the year 1903–4 the number of natives vaccinated was 21,453; the yearly number of vaccinations performed has steadily increased, and in 1908–9 amounted to 117,863. The great increase has been rendered possible by the fact that lymph is now prepared in the colony itself, instead of being entirely derived from Germany, as formerly.

Plague.

The endemic foci of plague had been eradicated by 1906, but there still remained the risk of its introduction by trading vessels from India; this actually took place in Zanzibar in 1905, 1907, and 1908. The greatest difficulty was caused by dhows with native crews, as these, instead of making use of the regular harbours, where a trained examination staff exists, were often simply beached at any convenient spot, so that when the tide fell they lay dry on the beach, and infected rats could scamper ashore. Some 20,000 rats were destroyed in the ten principal harbours.

The plague investigation department in Daressalam possesses a fully-equipped laboratory, as well as three mobile plague laboratories, which can be detached to any suspected locality. During the latter part of 1908, 12 cases of plague, 4 of which were of the pneumonic type, occurred in Daressalam; 6 of these were fatal. The last case occurred in January, 1909. Fortunately these cases were detected at an early stage, and, owing to the precautions taken, no epidemic resulted. At the same time rats were found to be infected with plague. Between 600 and 1,000 rats were examined each month from October, 1908, to June, 1909. In October, 1908, the percentage of rats found to be infected was 7.9; this percentage steadily diminished, till February, 1909, when it was only 0.3; after this date no definite infections were detected.

The measures taken to prevent the disease from spreading consisted in the isolation of plague patients, careful burial of the corpses of those dying from plague, disinfection of the dwellings, keeping contacts under observation, destruction of rats. The greatest importance was attached to the last precaution. The work was directed by the medical officer in charge of the laboratory, assisted by a junior medical officer, four medical subordinates, and ten to twenty natives. The town was divided into districts, in each of which in turn rat traps were set and phosphorus rat poison systematically laid out. Once in each two months every surface drain was fumigated with the Clayton apparatus. Two refuse carts were employed for two months to collect and remove all rubbish heaps which could afford a hiding place for the rats. By the end of the year plague had been eliminated from Daressalam.

Malaria.

As in every tropical colony, malaria is the principal cause of inefficiency. In German East Africa it is accountable for one-third of the total sickness and one-quarter of all the deaths. The great majority of Europeans live in the towns of Daressalam and Tanga; hence the antimalaria campaign was mainly directed to improving the health of those two places.

The antimalaria staff employed in Daressalam consisted of the medical officer in charge of the laboratory, assisted by two sisters, two Goanese assistants, and eight natives. The town was divided into districts and the blood of the native inhabitants in each district was systematically examined once a quarter to detect malaria carriers. In this way over 20,000 blood films were examined during the year. Owing to changes in the population and in the methods employed for examining the blood the results obtained cannot be used as an exact index of the state of malaria in this and in the previous years. It may, however, be stated with some approach to accuracy that, of 100 malaria carriers, 3 have tertian parasites, 10 have quartan, 15 have crescents, and 72 have rings, most of which are probably of the malignant variety. These figures would appear to denote that benign tertian has receded as the result of the general administration of quinine, but that quartan malaria has increased.

All malaria carriers, 4,578 in number, were given a course of quinine. In most of the cases the course lasted three months, and was carried out as follows: On two successive days of each week adults were given 15 grains of quinine in tabloids or solution, and made to swallow it in the presence of a European; children received a proportionately smaller dose in a sweet solution. In only four cases was an attack of blackwater fever induced by this treatment; all recovered, and were afterwards put through an acclimatization course of gradually increasing doses of quinine till complete tolerance of the drug became re-established.

The antimosquito measures were as follows: In May all drainage ditches were treated with saprol, and with a mixture of 2 parts of saprol to 1 of petroleum. In the case of wells for which petroleum was not suitable a species of cicada was introduced; at the beginning of the year a supply of these insects was obtained and placed in a pond in the experimental gardens; they increased so rapidly that a regular supply for use in wells could be relied on. Water tanks were either filled in or covered with wire gauze. Cisterns in dwellings were regularly run off and dried. Unfortunately funds did not permit of these measures being as thoroughly carried out as was the distribution of quinine, nor could mosquito brigades be formed. Mosquito-proof shelters have been put up in the verandahs of a number of houses; they are usually constructed of wire gauze, 10 ft. by 10 ft. by 10 ft. It was not found possible to effect a complete separation of native dwellings from those of Europeans.

The antimalaria campaign report from Tanga lays special stress on the great assistance rendered by the malaria sisters in examining and treating the natives. The blood of 8,239 adults and 2,870 children was examined for malarial parasites; of the adults 1,557 (= 16 per cent.) and of the children 680 (= 24 per cent.) were found to be carriers. Among 1,635 carriers, malignant tertian parasites were found in 954 cases, benign tertian in 242 cases, quartan in 387, and mixed infections in 52.

The report from the Cameroons mentions that the European officials had been exceptionally free from malaria during the year, and attributes this happy condition to the fact that most of them take quinine regularly (15 grains

[1] Berichte über die deutschen Schutzgebiete für das Jahr 1908–9. Herausgegeben vom Reichs-Colonialamt. Berlin: Mittler und Sohn. 1910. (9½ in. by 6½ in., pp. 622; 35 sketches in the text, 2 sketches and 39 illustrations in the Appendix.)

every fourth day) and live in well-built houses at a distance from the native dwellings. The railway employees suffered most from malaria, but even in their case, thanks to the persistent instruction given on hygine, the incidence was not great. The public health generally can never be really satisfactory till the native quarter is completely separated from the European dwellings.

Ankylostomiasis.

This disease fortunately has not attacked the Europeans, but among the natives working on the plantations of the coast districts it is the cause of much inefficiency and many deaths. The measures adopted with a view to eradicating the disease were as follows: (1) Instruction as to the nature of the disease, its path of infection, and its consequences, was given to Europeans and natives both by lectures and the distribution of pamphlets printed in German and Swaheli. (2) Proper latrines were constructed for all natives living in the infected districts. The form usually adopted was a large hole 4 or 5 ft. deep with a narrow opening at the top lined with tin to prevent soiling of the ground. (3) Protection of the water supplies from infection. (The last two measures were carried out by the planters.) (4) The detection of all infected persons by microscopic examination of the faeces; this was carried out by the medical staff. (5) The treatment of all persons harbouring the parasite; this was carried out by the medical staff assisted by the overseers of plantations.

In one district 2,433 natives were examined, and 1,502 (66 per cent.) were found to be infected. The treatment carried out in the Tanga district was as follows: First day, in the afternoon, 5 to 7 grains of calomel. Second day, three doses of thymol, each of 30 grains, with an interval of one to two hours between each dose; the drug was crushed and given wrapped in a wafer or cigarette paper. On the third day a purgative was given if required; for this purpose castor oil was preferred as calomel often failed to effect its purpose, and if the dose was increased symptoms of stomatitis were liable to occur. These large doses of thymol sometimes produced an effect similar to alcoholic intoxication, but were never followed by any serious symptoms.

Leprosy.

This disease is found in many districts, but fortunately does not show any tendency to spread and is not likely to have any prejudicial effect on the industrial development of the colony. The former system of collecting all lepers into a few asylums and keeping them strictly isolated there has therefore been abandoned in favour of a scheme of leper villages. These villages are located at some distance from the main roads. Each man is given a hut and a small piece of land on which he grows his own food. In most districts the natives, except those in the very early stage of the disease, were quite willing to remove to the leper villages and to remain there. A policeman is placed in charge of each village and has his hut near the entrance so that he can supervise the inhabitants.

Sleeping Sickness.

In the middle of 1907 the investigations of Koch's commission revealed the fact that along the German shores of Lake Victoria sleeping sickness was fairly widespread. A special commission consisting of five medical officers, one sister and ten medical subordinates was at once appointed to deal with this district, as also that on the shore of Lake Tanganiyka. The work which the commission was ordered to carry out was, first to get rid of the *Glossinae* by clearing the shores of the lake from all "bush" and trees, and next to endeavour to segregate all infected natives in special camps, where also attempts to cure the malady could be made. Most of the infections appear to have taken place in Uganda or the Congo; strenuous efforts were therefore made to stop all intercourse with these countries. Some of the more intelligent natives were trained to examine suspects for enlarged glands and afforded the commission much assistance, especially in the examination of travellers.

In Duala district (Cameroons) there is a sleeping sickness focus. The disease is said to have been imported from Fernando Po some thirty years ago. It does not show any tendency to become epidemic. Only a few cases occurred during the year, but all of them were very acute in character. The most important part of the report on the colony of Togo is that dealing with sleeping sickness. The disease is supposed to have been first introduced by the Ashantees in 1869. A commission was appointed by the Imperial Government in 1908 to investigate the extent of the disease, and to suggest measures for its control. By the end of 1909, 164 cases had been detected. These occurred in a comparatively small area of the colony bordering the Volta. They were collected into a segregation camp, and placed under the treatment of a special medical officer. *Glossina palpalis* is found in large numbers in the "bush" country, which covers approximately one half of the colony. In view of the existing conditions it seems strange that the disease has not become generally disseminated throughout the colony, and its failure to do so is probably to be explained by the fact that it is only in very recent years that the native has ventured to travel beyond the limits of his own village. With the security now prevailing in the colony, the natives are beginning to move about the country freely, hence the great importance of isolating all infected persons while the number is still small.

Experiments with Citronella grass have shown that it does not possess any power of deterring the *Glossina palpalis*. On one occasion, when a number of them attacked a native assistant, he was told to try the effect of moving into the centre of a plantation of this grass; the flies did not on this account allow themselves to be disturbed in their efforts to obtain a blood meal.

New Guinea.

The reports from German New Guinea lay stress on the fact that the population is not increasing, and is, in fact, in some districts actually diminishing. Various reasons are given for this condition of affairs. In one district it is stated that the natives deliberately prevent conception, produce abortion, or even kill newly born children. In the New Mecklenburg district repeated intermarriage of near relatives is stated to have produced a state of physical degeneration; female labour is also largely recruited for plantations; this in turn leads to a deficiency in the supply of marriageable women, and in consequence polyandry is now practised. The deficiency of population is very serious for the colony, as no large commercial undertakings are possible without a good supply of native labour. The question is receiving very serious attention from the authorities, and remedial measures are being considered.

Conclusion.

At the end of the volume there are a number of photographs of hospitals for natives recently constructed in the various colonies.

The report contains a mass of information on clinical medicine, sanitation, and public health. It speaks volumes for the very thorough and conscientious way in which the medical staffs of the German colonies are carrying out their duties.

THE GAS-WORKS PITCH INDUSTRIES AND CANCER.

IN former publications[1] [2] we have described researches which have shown that the division of human lymphocytes, leucocytes, and certain epithelial cells can be induced under the microscope by means of certain chemical agents which have been called auxetics.[3] These auxetics appear to consist of certain amidines, primary aliphatic amines, and amino-acids, which can be produced in the body by injury. In addition to this, other substances, which have been called kinetics, have been found which excite marked amoeboid movements in leucocytes and lymphocytes, and which, although they do not cause cell division by themselves, greatly augment the action of

[1] *Induced Cell-reproduction*, London, 1910.
[2] A Report on Cancer Research, BRITISH MEDICAL JOURNAL, October 23rd, 1909.
[3] The fact that some of these auxetics cause the division of human lymphocytes was seen by Professor Ronald Ross and confirmed by him in a letter to the BRITISH MEDICAL JOURNAL of January 11th, 1911; and we can also state that Dr. Fantham, Parasitologist to the Liverpool School of Tropical Medicine, using our methods, has recently been able not only to induce divisions in *Entamoeba coli* with auxetics, but also to cause them to multiply through three generations entirely by the agencies of those substances.

the auxetics in inducing mitosis. Based on these points we formulated a theory that carcinoma might be due to this augmentation of what are apparently the chemical causes of cell division.

Soon after this was published, we received a letter referring to the incidence of cancer amongst the workmen employed in the manufacture of fuel "briquettes." The letter informed us of the proposed Home Office Regulations to prevent this incidence; that the Regulations only applied to workers with pitch made from gasworks tar, and not from blast furnace tar; and asked if we could indicate which ingredient caused the cancer, as it could no doubt be eliminated during the distillation of the tar.

As this letter was the first information which we had that the high incidence of cancer was caused only by the gasworks pitch and not by the blast furnace pitch, and as this point is obviously of great importance to cancer research, we communicated with the Home Office. Dr. Whitelegge, the Chief Inspector of Factories, kindly gave us full information, and sent us Dr. Legge's original reports on the subject. It seems that while cases of warts and swarthy skins are very common, and epithelioma fairly frequent, among the workers with gasworks tar pitch, Dr. Legge could not find these conditions among the comparatively small numbers of workers examined handling blast furnace tar pitch. Hence in the proposed Home Office Regulations the following clause appears: "I hereby . . . make the following Regulations, and direct that they shall apply to all factories and workshops in which the said manufacture is carried on, *except factories or workshops in which no pitch other than blast furnace pitch is used in the manufacture of briquettes*" (the italics are ours).

We have also made inquiries, and think that there appears to be strong evidence that the warts, epithelioma, etc., are caused only by the gasworks pitch. Blast furnace pitch is made from tar which is distilled at a lower temperature. The pitches are powdered, mixed with small coals, and compressed into briquettes. The proposed Regulations, if enforced, will provide for the establishment of bathing accommodation and overalls to protect the men from pitch dust.

Reverting to the theory that cancer may be due to chemical auxetics and augmentors of cell division, we undertook some experiments to see whether any such substances could be found in the tars and pitches. We procured samples of both. The method employed need not here be described in detail; but we may mention that in the case of the tars 10 c.cm. of each was mixed with 90 c.cm. of a 5 per cent. solution of HCl, shaken up, filtered, and neutralized. In the case of the pitches, each form was finely powdered, and then 10 grams of it was mixed with 100 c.cm. of the 5 per cent. solution of HCl, filtered and neutralized. Certain quantities of the filtrates were added to "coefficient jelly,"[1] which also contained 1 c.cm. of a 5 per cent. solution of sodium bicarbonate; the total was boiled and allowed to set as films on microscope slides. A drop of fresh citrated blood from the finger was then mounted on to each film, which was incubated for ten minutes at 37° C., when the lymphocytes were examined. Briefly, the result may be tabulated thus:

	Contains Excitors of Cell Division (Auxetics).	Contains Augmentors of Cell Division (Kinetics).
Gasworks tar	Yes (0.3 c.cm.)*	Yes (1 c.cm.).
Gasworks tar pitch ...	Yes (1 c.cm.) (if augmented by atropine)	Yes (1 c.cm.).
Blast furnace tar ...	Yes (2 c.cm.) (if augmented by atropine)	No.
Blast furnace tar pitch	Yes (1 c.cm.) (if augmented by atropine)	No.

* These numbers refer to the quantities of the filtrates to be added to the jelly.

Hence it appears that gasworks tar contains a powerful excitor of cell division, and also an augmenting substance (kinetic). The same can be said of gasworks tar pitch. Blast furnace tar, and pitch made therewith, however, while containing a weak substance which will induce divisions if its action is increased by atropine, do not contain any augmenting kinetics which, from previous work, appear to be the cause of pathological (unsymmetrical) cell division. We submit, therefore, that this is strong evidence that the chemical agents which cause augmented cell division of lymphocytes under the microscope have something to do with the causation of cancer, because, in addition to other evidence already published, these agents appear to exist only in the one form of tar and pitch which causes the larger incidence of the disease in the industries where it is employed. The gasworks tar and pitch are among the most effective substances we have yet found for inducing mitotic figures in lymphocytes.

The experiments have been repeated with a 20 per cent. solution of ordinary soot, and both auxetics (1 c.cm. with atropine) and kinetics (0.2 c.cm.) can be extracted from it, although it is not so effective as gasworks tar for inducing mitosis. Lastly, it may be mentioned that these auxetics can also be extracted by water instead of hydrochloric acid, but cannot be extracted by alkali. What their exact nature is we do not yet know.

The question now arises: Can these principles be eliminated from the tar without injuring the pitch; and, if so, will the pitch then no longer be dangerous to the workmen other than those who deal with it prior to such treatment? We have tried to answer the first question by experiment on a small scale in the laboratory by washing the pitch, and then again mixing it with water to see if more auxetics and kinetics can be extracted. Extracts of washed pitch so treated no longer induced cell division or excitation.

The question whether pitch from tar so treated is no longer dangerous can only be answered by the use of such pitch (provided it is still suitable for the manufacture of fuel) in briquette works for a period of several months, to see if the incidence of warts, ulceration, and epithelioma is reduced. Unfortunately, the Home Office Regulations, if imposed, would render fallacious such an experiment, because it would be impossible to ascertain whether any amelioration of the incidence of cancer—if such occurs—is due to the use of pitch made from the so-treated tar, or to the bathing accommodation and overalls supplied for the workmen. In our opinion the Regulations, which are based on the obvious principles of hygiene and cleanliness, are very necessary, but it might be of great value to cancer research if this could be definitely ascertained, before the Regulations were imposed. An inquiry is to be held on the subject shortly, to consider some objections to the Regulations raised by the Patent Fuel Companies; and it is possible that this experimental corroborative evidence as to there being cell-division-inducing agents in the tar and pitch may be useful to the parties concerned.

We wish to acknowledge the information and assistance received from Dr. Whitelegge and Dr. Legge of the Factories Department of the Home Office. The expenses connected with the experiments have been defrayed by Sir William Hartley, of Liverpool, and Mr. John McFadden, of Philadelphia.

H. C. ROSS, M.R.C.S.Eng., L.R.C.P.Lond.
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THE BATTLE OF THE CLUBS IN BELGIUM.

[FROM A CORRESPONDENT.]

THE great success of the Cercle Médical of Antwerp in organizing the medical profession to resist the exploitation of the clubs has only been achieved against the most determined opposition. The Cercle Médical has been prosecuted on several occasions. On one of these enormous damages were claimed by a practitioner who had been put under ban, but the court allowed merely nominal, almost contemptuous, damages for some slight technical error on the part of the officials, while in other cases the Cercle has been completely victorious and has legally vindicated the right of the profession under the Belgian law to combine for self-protection and for the betterment of fees and general conditions of practice. One of the points insisted on has been payment per attendance according to a fixed scale of fees, details of which were given a few months ago. The clubs and various workmen's organizations and sickness insurance societies have resolutely opposed this, but owing to the solidarity of the profession in Antwerp several of these clubs have been unable to obtain any

medical officer, and they are gradually beginning to see the futility of opposing the profession, which is united to defend its rights. Chief among the means adopted by the Cercle Médical to bind its members together is a form of agreement which every medical man signs on joining the Cercle, and the success of the Antwerp union, which comprises almost the whole of the practitioners of the district, has led the profession in other parts of Belgium to imitate its organization.

The latest instance is at Ghent, where the Ghent Medical Union is adopting a form of agreement on very much the same lines as that of Antwerp. The form of contract or agreement between the Medical Union and its individual members commences by setting forth at length the reasons why so stringent a form of contract is adopted. It states that the present organization of the clubs and the societies that insure against sickness is seriously detrimental to the medical profession, that the tariffs are by their insufficiency an attack on the dignity of the profession, and by no means tend to the interests of the patients, and that there is thus urgent need for union and agreement in the profession to prevent a continuance of this state of things. It is pointed out that the object of the Ghent Medical Union, which is legally a "recognized professional union," is to ameliorate the situation for its members, both individually and collectively, by the adoption of a uniform line of action towards the clubs, and that it is of the first importance to adopt some means of preventing defections on the part of individual practitioners which would render the efforts of the Union sterile. In view of all this, each member of the Union signs an agreement that henceforward he will not accept service with any club or sickness insurance society except on the basis of the rules of the Medical Union, and that he will not accept any vacant post in any club or society, either existing or to be created, without the written permission of the Union. It is set forth that the remuneration for medical services will be fixed by common agreement between the clubs and the Union. The members further agree to communicate to the executive committee of the Union any contract, verbal or written, that they are under with any club or society that assures medical attendance, or in default the members agree to pay a fine of 50 francs, the Union on its part agreeing to enforce an increase of fees up to the tariff adopted. The signatories further agree to pay an indemnity or fine of 500 francs if they accept any vacant post without the written permission of the Union, and if within three months after an injunction by the Union any signatory has not resigned any such post, a further fine of 1,000 francs is agreed to be paid, and if a second period of three months shall have elapsed without resignation of the post a still further sum of 1,500 francs is agreed to be forfeited. The amount of these forfeits is not to be reduced under any pretext, and they are to be enforced again every year if the post is not vacated. The Medical Union on its side binds itself to enforce these fines, and in case any practitioner can show that he has incurred loss through carrying out the rules of the Union, the Union agrees to reimburse him or to pay him compensation up to the amount of 5,000 francs. This contract must be signed by every candidate for membership of the Union, and it is agreed that any dispute as to the interpretation of the contract in particular cases shall be submitted to a committee of three arbitrators, one chosen by the Union, one by the medical practitioner concerned, and a third by these two; if either party fails to appoint its arbitrator, or if the two cannot agree as to the third, the President of the Civil Tribunal will be asked to undertake the duty. No appeal is allowed from the decision of the arbitrators, and the agreement lasts for a period of five years and is renewable. In order to make sure of the legality of this agreement, which might conceivably be regarded as a "restraint of the liberty of commerce or of industry," under the Belgian law, it has been submitted to the highest expert legal authority, who has expressed an opinion that it is perfectly legal and valid. The form of agreement has recently been unanimously adopted by a general meeting of the Ghent Medical Union, which hopes to be as successful in obtaining the signatures of all the practitioners of the district as the Antwerp Cercle Médical has been.

There is at present a movement in the Belgian Parliament in favour of making insurance against sickness and invalidity compulsory for miners; but the Minister of Labour seemed to be expressing the view of the Government when he gave it as his opinion that not only should miners be insured, but that insurance against sickness and invalidity should be made compulsory for all categories of workers. In view of such a possibility the Belgian medical societies are organizing themselves, and endeavouring to obtain not only local union, as at Antwerp and Ghent, but a general confederation of all Belgian medical societies. The experiment in compulsory insurance in England, and especially the action of the British Medical Association in connexion with an insurance medical service, will be watched, we are told, with the greatest interest by the Belgian medical profession. It is evident that trade union methods have been fully and frankly adopted by the Belgian profession, and in certain quarters there would seem to be a feeling that the British Medical Association is only playing with trade union methods, which, sooner or later, from the sheer necessity for self-defence, will have to be fully adopted. At any rate, the Belgian profession is proving that it can achieve far more by adopting trade union methods, even to the extent of fining its members, than it has been able to achieve before by any other methods. The President of the Antwerp Cercle Médical recently said: "La formule du 'laisser faire,' chère aux Manchestériens, fait décidément faillite"; and however true or otherwise this may be in general politics, it is certainly true that in medico-politics the formula of *laisser faire* means bankruptcy. We wish every success to the medical societies of Antwerp and Ghent and other towns of Belgium in their battle with the clubs.

BRITISH MEDICAL BENEVOLENT FUND.

At the March meeting of the committee 24 cases were considered and grants amounting to £182 made to 20 of the applicants. Appended is an abstract of the cases relieved:

1. Daughter, aged 83, of late M.R.C.S. Has had an income of £13 supplemented by a friend, recently deceased. Voted £5 and recommended to apply for an old age pension.

2. Daughter, aged 53, of late M.R.C.S. Has a few shillings a week derived from a mortgage, and used to let a cottage during the summer. Quite incapacitated by serious illness for the latter half of last year, and now dependent for shelter on friends. Voted £10.

3. M.R.C.S., aged 73. Since an apoplectic fit three years ago has been dependent on children, who can only give slight help. Relieved three times, £24. Voted £12.

4. Widow, aged 62, of L.R.C.P., L.R.C.S.Irel. Has supported herself since her husband's death in 1896 by taking situations as cook, etc., but is becoming unfitted for her work and asks for a little assistance to start canvassing for a pension given by another charity. Voted £5.

5. Daughter, aged 43, of a late army surgeon. Used to be a nurse, but had to undergo a serious abdominal operation and now endeavours to maintain herself by taking lodgers. Voted £10.

6. Widow, aged 70, of M.R.C.S. Has just been elected to a pension from the United Kingdom Beneficent Association, but requires further help in consequence of her age and its infirmities. Voted £5 and recommended to apply for an old age pension.

7. M.R.C.S., aged 74. Used to have a good practice in a London suburb, but had to go abroad on account of ill-health and since his return has been unable to establish himself again. Now dependent on an old age pension of 5s. a week and 2s. a week given by a brother. Voted £12.

8. Widow, aged 40, of M.D., R.U.I. Since husband's death twelve years ago has received a home in exchange for her services as housekeeper, and now proposes to start a registry office. Relieved twelve times, £141. Voted £5.

9. Daughter, aged 56, of late L.R.C.P.Edin. Some years ago endeavoured to start a small business, but lost her savings, and is now dependent on a weekly allowance from a friend and small earnings from needlework. Relieved six times, £52. Voted £6.

10. Widow, aged 78, of M.D., L.S.A. Has rooms and a small weekly allowance at an almshouse, but requires help to provide attendance necessitated by an attack of apoplexy. Children unable to assist her. Relieved once, £12. Voted £5.

11. Daughter, aged 52, of late M.R.C.S. No income; endeavours to support herself by taking boarders and receives a little help towards the rent from a friend. Relieved three times, £42. Voted £10.

12. Widow, aged 53, of L.R.C.P., L.R.C.S.Edin. No income; no children. Health so indifferent that only very light work is possible. Relieved seven times, £70. Voted £12.

13. Daughter, aged 55, of late M.R.C.S. Is a chronic invalid and unable to undertake any regular or continuous work. Receives a small weekly allowance from a sister. Relieved thirteen times, £149. Voted £12.

14. Widow, aged 66, of M.D., C.M.Glas. Has been a confirmed invalid for many years, and is practically dependent on this Fund and a ladies' working guild. Relieved eleven times, £124. Voted £12.

15. L.R.C.P., L.R.C.S.Edin. Has been incapacitated for the last three years, and dependent on the help given by his sons and by two unmarried sisters who keep a small school. Relieved once, £10. Voted £10.

16. Widow, aged 87, of M.R.C.S., L.S.A. Has a pension of £25 a year from the United Kingdom Beneficent Association, but is bedridden, and requires help for quite unavoidable expenses. Children unable to help. Relieved twice, £17. Voted £12.

17. Daughter, aged 60, of late M.R.C.S. Has been subject to epilepsy since childhood, and, being quite unable to support herself, is dependent on a few shillings a week subscribed by friends and on a brother who can ill afford assistance. Relieved three times, £32. Voted £10.

18. Daughter, aged 68, of late M.R.C.S. Was provided for at father's death, but lost part of her capital by failure of a bank and the remainder in the endeavour to establish a boarding house. Relieved once, £12. Voted £12.

19. Widow, aged 53, of L.R.C.P.Edin. No income; lives rent free by acting as caretaker to a surgery, and receives slight help from two children; health indifferent. Relieved five times, £52. Voted £12.

20. L.R.C.P., L.R.C.S.Edin., aged 52. Used to have a fair practice in London, but lost it through ill-health, and is now quite without means. Hopes shortly to obtain a ship's surgeoncy. Relieved twice, £10. Voted £5.

Contributions may be sent to the Honorary Treasurer, Dr. Samuel West, 15, Wimpole Street, W.

STATE INVALIDITY AND SICKNESS INSURANCE.

A Successful Working Scheme.

THE Medical Secretary of the British Medical Association has placed at our disposal a very interesting and informing letter he has recently received from "A Durham Colliery Doctor" (Dr. J. Charles of Stanley) describing the scheme of collective medical insurance which is in force in the northern coalfield of England.

The writer begins by stating that he had heard the address delivered by Mr. Smith Whitaker at a meeting of the profession held in the Newcastle Royal Infirmary on March 24th, that the address had greatly enlightened him on the question discussed, and had deeply impressed him with its importance to members of the medical profession who, like himself, practised among the working classes. In subsequent private discussion of the address with friends who had been present it was suggested that a practical solution of the problem under consideration might be found in the adoption of some such scheme of provident medical insurance as has been in force for so many years among the miners of Durham and Northumberland. In this scheme it was felt there existed, ready to hand, an established, well-tried, and satisfactorily-working scheme of collective medical insurance which, with certain modifications and improvements, might well be taken as a model for the wider scheme of State medical insurance by which the Chancellor of the Exchequer purposes to provide in the near future for the medical wants of the working classes of this country.

The writer then continues as follows:

The purpose of this letter is to advance this proposition in some detail and to deal with it from the standpoint of one who has had long experience of the system described and an intimate knowledge of its working. For any faults or defects of presentation I plead the deficiencies of an inexperienced advocate.

In your admirable address you made it clear to us that it is only a matter of time when the Government will step in and exercise its control of the medical treatment of the millions of workpeople for whose insurance premium it will hold itself partly responsible, and the further step—the treatment of the workers' families and dependents and the Government control of the same—will inevitably follow. The profession, therefore, has to prepare itself for some system of State medical insurance being forced upon it in the near future, and it thus behoves it to use its best efforts to devise and promote such a scheme as will best subserve the interests of the workpeople, the profession, and the Government alike.

It would be futile for us to attempt to promote a scheme which will work chiefly to our own advantage. To do so would be to cover ourselves with obloquy. To receive Government approval it must be a scheme which will:

1. Fully cover the wants of those insured.
2. Be simple and easy of application.
3. Be readily estimated approximately as to its entire cost.
4. Be worked without elaborate machinery; and
5. Be acceptable to the general body of the medical profession.

Such a scheme, I admit, will be difficult to find, but it is surely not beyond the wit of man to devise. But it will certainly not be a scheme working on the lines of private practice with the Government to liquidate the national medical bill at the year's end. Such a system "never was on land or sea," and, as you stated, is unknown on the face of the earth at the present time. But a scheme will have a strong claim for consideration if it be exemplified in a system which is already in extensive operation throughout the country, which has stood the test of time, which can be shown to have worked satisfactorily to workpeople, employers, and doctors alike, and which is capable of adaptation and extension to meet the requirements of a State system. The groundwork of such a scheme, I submit, is to be found ready to hand in the system of provident medical insurance which prevails among the working population in our northern coalfield.

I should first like to remind you that the miners of Durham and Northumberland, among whom this provident medical insurance prevails, were perhaps the first to introduce those measures for the social and economic "betterment" of their own class which the Government is now seeking to adopt for the working classes in general. Many years ago they solved the problem of old age pensions as regards the members of their respective associations, and by their "permanent relief fund" and "union sick fund" they have for years made ample provision for their members incapacitated by accident or sickness. And this, be it said to their credit, without ever seeking or receiving a penny from the State exchequer. On similar lines of self-aid and mutual co-operation they, many years ago, solved the problem of medical attendance for themselves and families.

A word as to the economic status of the coal miner in the North. In a mining district the population is almost entirely a working-class one. The average wage of the adult worker is about 30s. weekly. In most cases a free house and coals, or an allowance for same, augment the worker's earnings. The people, when work is regular and steady, are therefore in moderately comfortable circumstances. Extreme poverty is rare, while, on the other hand, many of the more industrious and thrifty, through the medium of the co-operative store or building society, have been able to acquire a house of their own. As a class, therefore, they are economically nearly on a level with the ordinary artisan class in towns, who constitute the bulk of our industrial population. It is important to bear this in mind, for the State insurance system which it is proposed to introduce has as its main objective the supply of the medical wants of this class of the community.

The financial working of the miners' system of medical insurance is simplicity itself. The usual practice, although this varies somewhat in different districts, is for the miner to pay a certain sum fortnightly to a doctor of his own choice practising in the district in which he resides. This sum, which amounts roughly to £1* per annum,† is kept off his wages at the colliery at which he works, and is handed, less a small percentage for collection (usually 5 per cent.) to the doctor each fortnight. Confinement fees, minor operations, vaccination, etc., are extras. Thus in a colliery district, apart from tradespeople and others not working in the mines, practically every adult workman "pays" to a doctor, and every medical practitioner in the district is in receipt of a steady, regular income from this source.

When a workman wants to change his doctor he gives notice to the clerk at the colliery office, and next fortnight his name and the amount of his subscription is

* 19s. 6d., to be exact. † Single workmen pay 13s.

transferred to the pay sheet of the doctor who now claims him as a patient. And, on the other hand, if the doctor, through some disagreement with his patient, wishes to part company with him, he proceeds in a similar way. But these "breaks of contract," I must admit, are not common, although the elasticity of the system permits them without hindrance, and this liberty of action is zealously guarded on both sides. As a rule, however, the relationship of doctor and patient is a wonderfully lasting and permanent one, and the spirit of loyalty is fostered on both sides. It is not uncommon for old residents to have "paid" to the same doctor for a score of years, and to continue paying to his son who succeeds him. The system tends to promote the closest and friendliest relations between doctor and subscriber, and the term "family doctor" still retains its old significance among the members of this community.

This system of medical insurance obtains almost universally, as I have stated, in the two northern counties where the coal-mining industry prevails. In districts extending over many square miles, and with populations running up to 50,000 and more, the system holds full sway, working without a hitch, and with satisfaction to all concerned.

The benefits and advantages to the workmen of this system are briefly as follows:—For all ordinary medical and surgical treatment (including medicines) for himself and his family he is covered by the premium which he pays to the doctor of his own selection. He can call at the doctor's surgery, or be attended at his own home, without further fee; he can get his club certificates filled up without extra charge; he can, in short, get treatment and advice for all his medical wants without having to worry about fee or account. To the working man with a small margin between income and subsistence requirements this must be a great boon, and, in times of sickness, a comforting satisfaction.

That the miners prefer the system and appreciate its benefits and advantages is proved by the fact of its general adoption throughout the whole northern coalfield, and its continuance for over half a century without an attempt, or even the wish, so far as I can learn, to end or mend it. The system appears to satisfy their provident instincts, and their sense of freedom and independence. The miner feels that he is doing well for himself, and dealing fairly and honestly with his medical adviser. There is nothing in the system that savours of charity or patronage. He will have none of these. He prefers a fair and honest contract, and on his part will do his best to fulfil it. His relations with his doctor, being based on a mutually agreed cash nexus, without intermediaries of any kind, are straightforward and satisfactory, and in consequence, as I have stated, usually of the friendliest description. There is mutual trust, confidence, and respect. The patient knows that it is both to the doctor's interest and reputation to do his utmost for him, and therefore he can rely on his best efforts on his behalf. Should the relations between doctor and patient become strained or broken, as in any style of practice they must at times, then they part company and make other arrangements. There is no compulsion; the system allows perfect liberty of action on either side. Each party knows his rights and does his best to uphold them, and not to abuse them.

From the doctor's standpoint the system has many admirable features, and possesses many advantages. It insures him a steady, regular income, which he can count upon year in and year out, no matter whether sickness be slight or the reverse. He gets his earnings regularly, and at frequent intervals without sending out accounts. He runs no long bills, and makes no bad debts. His income is not dependent on the sickness or misfortune of his patients. If the community is healthy he is not affected in pocket thereby. He has no "lean years" except in case of strikes. If at times he has to work hard, at other times he is comparatively idle, and yet his income continues the same. He enjoys the leisure which the lessened sick list brings in summer, and takes his well-earned holiday knowing that his receipts while he is off duty will cover the steadily increasing cost of his locumtenent's expenses. And at the year's end he can sum up his income with the satisfaction that "all is safely gathered in," that if he has not got paid for every visit, every bottle of medicine, every scrap of advice given during the year, he has earned and received for his year's work an income which will compare favourably with that made by his professional brother in "private practice" in town among a similar class of patients, at an expenditure of perhaps as much physical and mental energy, and a great deal more in worry and anxiety.

As to the annual income made by the doctor under this system of collective medical insurance this, of course, depends on circumstances, and I dare say varies as much as the incomes of town or country doctors in ordinary private practice. It is rare, however, for the humblest practitioner, even the outdoor qualified assistant in mining practice, to receive less than that stated by Dr. Benjamin Moore to be the average income of the profession. The majority make at least double that amount (nett), and many as much as that again.

Now as to the work actually done. Those unacquainted with this system of contract practice imagine that the doctor's time and patience are abused, that he is sent for at all times of the day and night for inconceivable trifles; in a word, that patients are lost to all sense of reasonableness in their demands.

After a long experience of mining practice I am able to say that this idea is perfectly erroneous. The great majority of patients, I have found, do not abuse their privileges, are not unreasonable or inconsiderate, but, on the other hand, are wonderfully observant of surgery rules and regulations, and readily adapt themselves to the doctor's ways and habits if he is at all reasonable and tactful. It is a feature of this class of practice that about 20 per cent. of the *clientèle* monopolize the doctor's services, and the many pay for the few.

Naturally the great bulk of the cases treated are of trivial importance, but then they are all the more readily cured, or the subjects of them the more easily reassured. Patients come early for their own sakes, and treatment is consequently more prompt and effective. Chronic cases are treated frankly and reasonably, and not allowed to become a nuisance. It is wonderful how easily they are satisfied with treatment which is at once honest to themselves and their medical attendants. Besides, as I have said, there is ample liberty of action, so that if a patient thinks he is being neglected or improperly treated he has the remedy in his own hands.

The system, from the point of view of the public health and well-being, has much to commend it. Every practitioner is a genuine, whole-hearted worker in the interest of sanitatation and public health. The higher the standard of the general health the less work he has to do, so that it is to his interest to prevent disease if possible, or to lessen as much as he can the sickness of the community in which he labours. Thus the doctor under this system is induced for his own sake to take a direct interest in the physical well-being of his clients. He becomes keen on preventive measures, in stamping out epidemics at their onset, in recognizing diseases early, and treating them promptly. To lessen his work he is free in his admonitions, lavish in his advice, and ready in his interference. In dealing with infectious diseases he outstrips the M.O.H. in zeal and activity, and gives the sanitary authorities no peace till every wheel of their preventive machinery has been set in motion.

In short, under this system of collective medical insurance the doctor exercises to the full his highest functions in the body politic. Not only does he attend and treat the sick, but it is as much his duty and aim to instruct and inform the healthy so that they may keep well; when disease presents itself in any form, he is encouraged to be as active in limiting its spread in the community as to cure it in the individual.

Such, then, is the system of contract practice which has held the field against all others in the mining districts of our two northern counties. From the medical standpoint its salient features are:

1. Its satisfactory financial basis.
2. Its simplicity of working.
3. Its great elasticity and freedom.
4. The absence of all lay control; and
5. The incentive it gives the doctor to do his utmost both to prevent and cure disease.

Of course, it has its shortcomings and disadvantages, as every system of collective practice must have. Most of them, however, are inseparable from any style of practice, private or collective, in a working-class community. It

does not allow much scope for the use of modern diagnostic instruments of precision, such as the haemocytometer, or the sphygmomanometer; nor does it offer a suitable field for the refinements of bacteriological or electro-therapeutics. Its working methods are, perhaps, somewhat rough and ready, but they may be none the less effectual.

Despite its deficiencies, however, it is a system of practice suited to the homely and simple people among whom it finds so many adherents. Its chief defect is that as a public service it is not complete. From the want of properly equipped hospitals it is unable to cope with all the demands placed upon it; most cases requiring a major operation and a great many of the "speciality" cases have to be sent to the nearest infirmary. In this respect, however, it does not differ much from ordinary working-class practice. I should like to see the system made complete and self-sufficing as a public service by the establishment of good, up-to-date cottage hospitals in every large mining centre, with an experienced surgeon on the honorary staff, and a well-equipped operating room at the disposal of the colliery surgeons for all ordinary surgical work. Such hospitals, visited at stated intervals by experts in the various specialities, would make the system perfect and complete, and put it in a position to supply every possible demand that could be made upon it.

To graft a scheme of State medical insurance on such a system as I have described—a scheme on the lines adumbrated by the Chancellor of the Exchequer—would not be a difficult undertaking. Most of the machinery is already available.

First as to the financial basis. To meet the demands of a State system with its increased responsibility, and requirements, extra clerical work, etc., a higher rate of payment would naturally be expected. Assuming this to be fixed at 26s. per annum for each adult married worker (including family), and 13s. per annum for every adult single worker, this would be paid in the following proportions: Half by the workman, a fourth by the employer, and a fourth by the State. This would amount to a deduction of 6d. per fortnight from the workman's wages (in the case of a single adult workman 3d.) and the payment of an equal sum jointly by the employers and the State. The amount of the workmen's contributions, according to the number on each doctor's list, would be paid to the doctor every fortnight by the employers, together with their own proportion. The State would remit its quota at agreed intervals. The system in other ways would go on as at present in the colliery districts, with Government control and supervision—for example, visits of medical inspectors, the writing-out of reports and returns, etc., superadded.

Apart from this supervision, the practitioner under this State system would enjoy as much liberty and freedom as heretofore, would remain in direct touch with his *clientèle* without lay or official intervention; would enjoy a regular, assured income, probably enhanced in amount, without the trouble and worry of issuing and collecting innumerable small accounts; and, lastly, he would retain his dignity and self-respect as a member of a profession performing an indispensable function in the body politic, and yet not directly dependent for existence on the ills and misfortunes of the community.

I have now completed, very imperfectly I admit, the task I set myself to perform, namely, to show that in the system of practice which prevails in our two northern counties there exists an established, satisfactorily working scheme of collective medical insurance which is capable of being adapted to a wider scheme of State medical insurance for the industrial working classes in general, contemplated, it is believed, by our Government in the near future.

I do not contend for it that it is a scheme capable of application to the entire working-class community, whether in town or country, without at least a considerable financial readjustment; nor can I hope for it that it will receive general acceptance among a body of practitioners mostly accustomed to private practice; but I do maintain that it is a system founded not on imagination but on fact, not on expectation but on experience, a system which for many years in a populous industrial community has justified its existence pragmatically—has worked well. Can the same be said of any other scheme at present engaging the attention of the profession?

SCIENCE NOTES.

THE use of secondary x radiation in therapeutics, which was discussed by Sir J. J. Thomson at the last annual meeting of the British Medical Association, was the subject of an address by Professor C. G. Barkla to the Roentgen Society of April 6th. Professor Barkla, who had already provided a pendant to Sir J. J. Thomson's paper,[1] in the shape of a recent article in the BRITISH MEDICAL JOURNAL,[2] has now carried further the investigation on which Sir J. J. Thomson's paper was based, and has ascertained the thicknesses of aluminium and of water which have to be traversed by the secondary radiation from various metals before that radiation declines to half value. He reminded the society of the fact that the secondary radiation coming from a substance which has been placed in the path of the primary beam from an x-ray tube is of three kinds: (1) The scattered radiation, which proceeds from elements of low atomic weight or compounds containing the lighter elements; (2) the fluorescent radiation, which is by far the most important; (3) the corpuscular radiation, which corresponds to the beta rays from radium. The secondary fluorescent radiation is homogeneous or practically so, and the only condition necessary for its production is that the substance or metal plate should be subjected to a primary x-ray beam of more penetrating constituents than the radiation characteristic of the substance itself. The secondary x radiations from calcium, iron, copper, and selenium are half absorbed after passing through thicknesses of aluminium varying from $\frac{1}{1000}$ of a centimetre for the first to $\frac{1}{10}$ of a centimetre for the last. Much more penetrating, however, are the secondary radiations from metals of higher atomic weight, such as molybdenum, silver, antimony, and cerium. The thickness of aluminium necessary to absorb half the radiations from these metals varies from $\frac{1}{10}$ of a centimetre for silver to $\frac{1}{17}$ of a centimetre for antimony. In the case of these last, and probably in many others, yet another radiation exists, and is absorbable to half its extent by $\frac{1}{2000}$ of a centimetre in the case of silver, and $\frac{1}{1700}$ in that of antimony. The thicknesses of water absorbing these radiations to half value are perhaps of greater interest than those of aluminium, since water approximates in this respect to human tissue. Half of the secondary radiation from calcium is absorbed in $\frac{1}{120}$ of a centimetre of water; half of that from copper in $\frac{1}{14}$ while the secondary radiation from silver is only brought down to half value on passing through 1.4 centimetres, and the radiation from cerium can pass through 6 centimetres before declining to this extent. For therapeutic purposes, said Professor Barkla, the choice of a metal to act as "transformer" depends upon the depth at which it is required to get the radiation. In the case of selenium, for example, half the radiation through water or flesh will be cut off at a depth of 2 millimetres, and at 1 centimetre below the surface the effect will be negligible. The corpuscular or third type of radiation is emitted only to a short distance—1 centimetre in air, and probably only $\frac{1}{1000}$ of a centimetre in water or flesh tissue—and it is impossible to use it therapeutically unless a substance in solution containing heavy atoms could be injected into the part, or a plate of any metal of high atomic weight placed within the tumour, and then irradiated with a very hard tube. The outstanding problem is still the measurement of the secondary radiation dose. It will have to be carried out on dummy figures presenting similar thicknesses to the parts to be treated, and electroscopes of larger capacity than those at present in use will be required. It was evident in the discussion that some confusion existed as to secondary radiation and the products of the x-ray filter, and Professor Barkla, in his reply, stated that with radiation passing through filters the primary as well as the secondary rays were obtained. In order to get the pure homogeneous secondary radiation one must use the radiation reflected—to revert for a moment to terms of light—from the surface of incidence, that is, the plate of metal or

[1] BRITISH MEDICAL JOURNAL, 1910, vol. ii. p. 512.
[2] Ibid., p. 1532.

substance receiving the primary beam. The question as to the order of penetration which is most efficient depends upon the portion of the body subjected to treatment. In the case of the scalp with the bone behind it, the penetrating radiation will be transformed to some extent by the calcium in the bone, and secondary rays will arise in that manner.

Considerable interest attaches to the recent discovery in America of a mummified dinosaur. More or less complete skeletons of these remarkable reptiles have been met with from time to time, and from these remains palaeontologists have conjured up pictures of what the animals looked like when alive. This new find will add concreteness to these fancies, and serve to set some disputed points at rest. The mummy, which it is thought must be well over a million years old, was unearthed in Kansas in the Cretaceous. It is more than 30 ft. long and about 16 ft. in height. Its head is furnished with a broad, flat beak, very much like a duck's, with no teeth in front but with an enormous number behind. The skin is studded with granules and tubercles of various sizes, and it even preserves some trace of coloration, which is more strongly marked in front than behind. The reptile apparently walked erect on its hind feet, and its short forefeet were entirely destitute of claws. The fancied picture does not tally with fact in one or two points, but it is surprising to find the two so close as they are. We owe the account of this interesting discovery to Professor H. F. Osborn, the well-known American palaeontologist.

LITERARY NOTES.

The Rev. E. G. O'Donoghue, who for nineteen years has been the chaplain of the Royal Bethlem Hospital, is writing the history of the institution in the quarterly magazine of the hospital, with illustrations. The House of the Blessed Mary of Bethlehem was a dependency of the present Church of the Nativity, Bethlehem. Mr. O'Donoghue not long ago had a communication from one of the Franciscan monks of the convent at Bethlehem, who had recently seen a lunatic chained to the altar in a neighbouring monastery.

A book of historical impressions and tales by Sir A. Conan Doyle, M.D., entitled *The Last Galley* will be published by Messrs. Smith Elder on April 25th.

We have received from Messrs. Lewis a Supplement (1908–10) to the catalogue of their *Medical and Scientific Circulating Library*, including a classified index of subjects, together with the names of authors. It cannot fail to be of the greatest use to the many patrons of this well-known circulating library.

One great secret of success in journalism, and for that matter in every kind of literature, is the power of being able to foresee what is most likely to attract the attention of the public at a particular time. This *flair* has always been possessed to a very high degree by the authorities of *L'Hygiène*, who could hardly have chosen a more propitious moment than the present, when the plague in Manchuria is exciting general interest, to present their readers with Dr. Mosny's excellent article on "La Peste," which appeared in the March number of that delightful magazine. Such as are interested in the historical aspect of this dreadful disease will welcome this account of the various great epidemics which from time to time have ravaged the world, whilst those who entertain fears for its reappearance in Europe cannot fail to be comforted by the author's firm belief in the efficacy of our modern prophylactic measures. Though the origin of the plague is unknown, "lost in the mist of ages," according to Dr. Mosny, it is almost certain that it first made itself felt on Asiatic soil. Dr. Mosny is of opinion that the sickness with which the Philistines were smitten after their capture of the Ark of the Covenant was an early epidemic of plague, and amongst other details, he quotes in support of his theory the fact that the Bible mentions the sudden appearance of large numbers of rats in the stricken city. It was not until the sixth century after Christ that the pestilence gained a footing in Europe, which it has never since entirely lost, though, thanks to the advance of science, the tremendous epidemics of former days are now things of the past. It is interesting, by the way, to note that the costume adopted by doctors and nurses in Manchuria at the present moment is not unlike that worn in France during the outbreaks of plague in the seventeenth and eighteenth centuries. Charles de l'Orme, Physician to Louis XIII, was wont to visit his patients attired in a coat and mask of morocco leather, the latter having attached to it a false nose half a foot long, which was filled with perfumes in order to guard the wearer against infection. Besides Dr. Mosny's history of the plague, the present number of *L'Hygiène* contains several other articles which are worthy of more than passing notice. Amongst these should be mentioned one by M. Edmond Cleray, who has taken for his subject the quack doctors of ancient France, and another by Dr. P. Redard, who lays down some simple but eminently practical rules for the guidance of those who have charge of the health of growing children, whilst Dr. Maurice de Fleury discourses in his usual charming way on the *pros* and *cons* of inoculation against typhoid. It should be added that the illustrations of *L'Hygiène*, as usual, leave nothing to be desired.

Some months ago there appeared in *The Library Association Record* an interesting article by Mr. H. M. Barlow, of the Royal College of Physicians of London, which contained some valuable suggestions as to the most effectual method of providing the medical profession in this country with adequate means for medical research. This article was reprinted in pamphlet form, under the title of *The Medical Library Association: a Few Observations.* The author expresses his conviction that one of the most pressing requirements of the profession at the present moment is some arrangement whereby it would be possible for every doctor in the kingdom to know where and how to find a given book, so that it could no longer be said with truth that "to the profession at large the entire resources of medical bibliography in the various medical institutions of London are closed." That it is possible to remedy this state of affairs is proved by the success which has attended the work undertaken during the last thirteen years by the Association of Medical Librarians in the United States. Founded in 1898 by Dr. Gould of Philadelphia, and at first comprising only eight members, the new enterprise, thanks to "the indomitable zeal of those to whom the inception of the movement is due," advanced by leaps and bounds, so that in 1906, only eight years after its foundation, its annual report recorded a total of 111 members, of whom 64 were library, 44 individual, and the rest were honorary, members. The fact that, as Mr. Barlow tells us, "the custodians of these libraries, scattered over large American States, extending from the Atlantic to the Pacific, should have been imbued with such a spirit of co-operation as to band themselves together and work with one accord to push forward the interests of medical libraries," shows that it is possible for those in charge of English medical libraries to do as much for their readers. Moreover, the resources of professional literature are greater in England than in America; for whilst in 41 English libraries there are some 603,000 volumes, 69 American contain no more than 935,000, figures which, "even as they stand, justify the remark that in proportion to population there are more medical libraries in these islands than in the United States." Nor does this total represent anything like a complete list of either the libraries in this country or their contents, since it includes neither the libraries of medical schools, colleges, nor the medical departments of universities, all of which, on the contrary, are included in the American estimate. As yet, however, this vast store of knowledge has been to a great extent useless, principally owing to the dearth of proper catalogues. Mr. Barlow remarks that "one of the most important features of reference work is knowing not only the book required, but where it is to be found," and declares that "every librarian will agree that printed catalogues of the principal medical libraries of London, if not absolutely necessary, are eminently desirable." There can be no doubt of the justice of this comment; and it seems probable that with a sufficiency of proper catalogues and a practical system of exchange for duplicate books and periodicals, the medical literature of the United Kingdom would no longer continue to be a *mare clausum* to the bulk of the profession.

British Medical Journal.

SATURDAY, APRIL 15TH, 1911.

SECONDARY SCHOOLS AND MEDICAL SCHOOLS.

THE Educational supplement to the *Times* of March 7th contained an article upon medical education, criticizing the attitude taken by the General Medical Council towards the study of the preliminary sciences (Chemistry, Physics, and Biology). The article drew from university teachers, head-masters, and science teachers at some public schools, letters which generally endorsed the views of the article, and, in the aggregate, present a strong case.

The cause of complaint is, broadly speaking, that the Council for its purpose of students' registration recognizes only medical schools and certain other specified institutions, excluding from its list all secondary schools, with the result that the time spent in science work at secondary schools cannot be counted towards the five years' curriculum, nor can such courses be accepted in filling up the schedule of studies, unless the candidate intends to seek a diploma from such licensing bodies as have declined to abide by the Council's ruling in this matter.

We do not propose to enter the lists as apologists for the position taken up by the Council, for we have for years past advocated a change in the direction desired, but some side-issues have been raised, somewhat unfortunately in our opinion, which may be briefly dealt with before coming to the main question. The Council is severely criticized for having assumed the position of a judge of the standards of general education, and incidentally for scheduling such examinations as would satisfy its requirements. But the writers did not know, or had forgotten, that the Council was long in consultation with educational experts of high standing called in for the purpose, and that it sought, and abided by, their advice in these matters. It might be contended further that, matters of detail apart, the Council, being very largely composed of past and present medical teachers familiar with the attainments of first year students, is not after all a very bad judge of the educational standard requisite in order to enable would-be medical students to profit by the instruction they are to receive.

The criticism is carried further, for it is contended by one writer that the position assumed by the Council in not recognizing science teaching at schools has a very wide effect, in that it is in fact "deliberately endeavouring to exclude all elementary science from our courses of general education," though another writer more kindly suggests that it is unconsciously doing so. This is a new aspect of the matter to which due weight must be attached; but as in 1909 the names of only 1,143 persons were added to the *Medical Register* (about an average number for recent years), the Council could hardly be expected to suppose that rules affecting this relatively small number would have so marked an effect upon education at large as is now alleged. A further contention is that the exclusion of all secondary schools from the Council's list implies their supposed inferiority to the institutions recognized, and that this, as one writer puts it with unnecessary emphasis, is an insult to the schools. This accusation appears to be founded on a misconception of the grounds on which the Council acted, for it is well aware that a good many secondary schools provide equipment and teaching which leave little to be desired, though it may be doubted whether this is true of the majority.

It should be understood that the normal sequence of events, according to the Council's pronouncements, is that the student passes his preliminary examination in general subjects, then enters either at a medical school or at an institution recognized by the Council for chemistry, physics, and biology, and registers himself as a student. From this date his curriculum of five years commences; with the other requirements of the curriculum we have no present concern. Now the pronouncements of the Council are styled "regulations," and, when read by any one not acquainted with anything more, would seem to point to this being the only way in which a registrable qualification can finally be obtained. But whilst many of the licensing bodies require the Council's certificate of student registration, there are others, and important ones, which do not. Thus neither the Oxford nor Cambridge requires it, nor does the Conjoint Board in England. The last-named, in fact, recognizes its own list of places where chemistry, physics, and biology may be studied, and amongst these are many secondary schools. The Council has no power to enforce its "regulations" in this respect, and their adoption by licensing bodies is voluntary. It is claimed by the Royal Colleges that, so far as the examination test goes, the instruction at secondary schools is equal to or in its results even better than the instruction at medical schools, where, by the way, the teachers of these subjects are very often, indeed generally, not medical men. Mr. W. M. Fletcher, who writes from Trinity College, Cambridge, to endorse the comparative efficiency of the teaching at public schools, bases his opinion upon examination tests.

It is therefore urged that, as already advocated by Sir Henry Morris, the wording of the Council's pronouncements on students' registration should be amended, even though their spirit be left unchanged. If it be asked why the Council has so resolutely adhered to the policy of excluding public schools from its list of recognized institutions, the answer would seem to be that it finds the general educational equipment of the first year student, even though on the average he be 18½ years of age, is not too good; it fears that any relaxation of existing regulations permitting the last year of school life to be spent in preparing for an examination in the preliminary scientific subjects would tend to deterioration. Guided by the educational experts it consulted, the Council formed the opinion that in the present state of secondary education in the country generally, no raising of the standard of entrance examinations would be possible without starving the supply of medical students, and that if at present some are delayed, it is to their own ultimate advantage. As to this conclusion, there is, of course, room for difference of opinion. Many think, though the Council apparently does not, that fuller science training in school life would afford just as good mental training as further pursuit of ordinary school subjects. Some of the masters who have written to the *Times* express the opinion that

the inability to count the science work done at school leads to the premature removal of boys who intend to enter the medical profession.

There is no statutory obligation placed upon the Council to keep a register of students; it was instituted in the general interest of medical education. It has proved of value in various ways, and particularly in the prevention or detection of irregularities; and, as a matter of fact, a large proportion of those who ultimately seek a diploma or degree from bodies which do not insist upon registration have in fact registered at the commencement of their career at the office of the Council. The contention that the Council's pronouncements should be amended so as to bring them into accord with the actual conditions seems unanswerable in face of the fact that, as at present framed, they have no real application to bodies which grant diplomas and degrees in such large numbers as the Conjoint Board in England and the Universities of Oxford and Cambridge. It is to be hoped that when their revision is taken in hand, as it must be, it will not stop short at a mere adjustment of phrases, but that the would-be medical student will be given permission to study preliminary science subjects at such schools as are found to possess the requisite machinery.

Some difficulties will have to be met; it will probably be considered important to secure that, if the time is to be counted as part of the curriculum, an adequate number of hours in every working week shall have been devoted to these subjects. Sir William Whitla, in his address to the British Medical Association in 1909, expressed the opinion that the most hopeful line upon which to lighten the medical curriculum, without the omission of subjects which have become essential, was to direct, from the very beginning, the teaching of subjects to their ultimate applications and to eliminate that which, for want of a better term, might be described as "academic knowledge."

However sound we may believe this policy to be it must be admitted that it will not be easy to apply it to the three preliminary sciences, since even at medical schools the teachers of these subjects are not always medical men. The general grounding in these subjects must be practically the same for all who approach them, and he must indeed be sanguine who supposes that a lad can in a year be taught how to grapple with the difficult and imperfectly understood problems of physiological and pathological chemistry.

THE ORIGIN OF LIFE.

DURING the last fifty years the energies of biologists have been in large measure directed to the elucidation by observation, experiment, and speculation, of the development through evolution of the species of living things, estimated to reach the huge total of at least a million, by which the earth is inhabited and clothed. Not content with this problem, certain astronomers have recently indulged in speculations as to the existence of life on at least one other planet. But the problem how and where life originated has received little or no attention, and those few who have attempted to attack it have been met by indifference verging on contempt. It would seem that even the collective human mind, as represented by those who are devoted to any one department of science, can only give attention to one problem at a time, and that the immense fields for observation and speculation opened up by the theory of evolution and the facts of bacteriology have left neither leisure nor inclination for the investigation of the origin of life.

Yet if we accept the doctrine of the continuity of nature, and if, with at least the majority of astronomers, we believe that our planet was once at a very high temperature, probably first gaseous, and later molten, we must admit that at one period at least in the history of the Earth conditions existed which determined the origin of living from not-living matter. It is true that Professor Tyndall once suggested that life was brought to the Earth by meteorites; but apart from the fact that this only puts the problem one remove further off, the best opinion seems to be that meteorites are masses expelled in some tetanic convulsion of the Earth in an early stage of its evolution. This effort of the scientific imagination, then, may safely be dismissed, and we are left with the other alternative. It would seem tacitly to be assumed that the special conditions favouring the origin of life, which the hypothesis requires to have once existed, came to an end after persisting for some undetermined length of time in some remote aeon, and that since then the travail of nature has been confined to the perpetuation of the species which then came into existence, and the production of new species by evolution. This, however, is an assumption insusceptible of proof, and it is open to any philosopher to assert, and to any biologist to prove, that it is not true. This is what Dr. Bastian, with a constancy to the ideas of his early manhood and with a courage and independence worthy of all praise, has again set to work to do.

His new essay, *The Origin of Life*,[1] will, we imagine, make a stronger appeal to most readers than his book *Studies in Heterogenesis*, published a few years ago. Heterogenesis, the transformation of one type or species of organism into another *per saltum*, cannot be postulated as an event which must inevitably have occurred at any time in the Earth's history. Having regard to the enormous number of facts observed and recorded during the process of testing and establishing the theory of evolution, it is, indeed, difficult to believe that evidences of heterogenesis should have been persistently overlooked. The fallacies to which such experiments as Dr. Bastian described in his earlier work are open are, we were going to write, endless; they are at least very numerous and difficult to exclude. The fallacies which attend those to which he has recently recurred, though still numerous, are fewer and may be more easily avoided. We must content ourselves here by stating what Dr. Bastian maintains that he has proved.

The experiments he now records are similar to those recorded in vol. xc of the *Medico-Chirurgical Transactions* (1906), but much more numerous. In both two saline solutions were dealt with—one containing only two or three drops of dilute sodium silicate, together with eight drops of liquor ferri pernitratis to the ounce of distilled water, and the other containing about the same quantity of sodium silicate, together with six drops of dilute phosphoric acid and 6 grains of ammonium phosphate to the same quantity of distilled water. Sealed tubes, sterilized in the course of their preparation, were opened to be charged with these solutions, and were then immediately resealed, and afterwards

[1] *The Origin of Life:* Being an account of experiments with certain superheated saline solutions in hermetically sealed vessels. By H. Charlton Bastian, M.D., F.R.S. London: Watts and Co. 1911. (Crown 8vo, pp. 76. 3s. 6d. net.)

heated either in a bath of colza oil or in an autoclave to temperatures ranging from 125° C. to 145° C. for from five to ten minutes. The tubes were then exposed for periods varying mostly from two to four months, either to diffuse daylight or to sunlight inside a south window. Several series of experiments are recorded; in the earlier trials, as in the experiments made in 1906, a rather larger quantity of sodium silicate was used than in the later trials, with the result that after the process of heating a quantity of silica was deposited in the form of minute flakes. As the organisms that were subsequently found within these tubes were often not very numerous and were always met with in or upon the flakes of silica, never in the supernatant fluid, which invariably remained clear, a long search was at times required to find them. In the later experiments less sodium silicate was used, so as to yield only a very small amount of deposit, and this was examined with the aid of the centrifuge. Some of the deposit was in each case transferred, immediately after the opening of the tube, by a sterilized pipette to a microscope slip, and when organisms were found some of them were at once photographed. The 61 single or composite illustrations now published show that the organisms met with were various kinds of bacteria, torulae, and moulds. Two means were adopted of proving that the organisms were living. Sometimes the cover-glass was at once ringed with paraffin, melting at about 105° F., so as to prevent evaporation, and in the course of three or four days great multiplication of organisms beneath it often took place. In other cases another sterilized saline solution, containing ammonium tartrate and sodium phosphate, was inoculated with some of the deposit from the experimental tubes, and in this solution (containing much more carbon) the organisms multiplied freely. Living organisms, therefore, were taken from these superheated tubes, and it is contended that such organisms as are shown in the photographs could not have been derived from the atmosphere during the passage of the sample of deposit in the sterilized pipette from the tube to the microscope slip or to the solution to be inoculated. Experiments are recorded to show that the experimental solutions are not prone to be contaminated from the atmosphere. Many positive results were obtained from tubes that had been heated to 125° and 130° C., while in the three series of experiments recorded (numbering just 200 in all) positive results were obtained in twenty-one instances in which the tubes had been heated to 135° C., in five in which they had been heated to 141° C., and a similar number in which the heating had been to 145° C. In all the experiments torulae were met with rather more frequently than bacteria, and in the twenty experiments of the last series in which pure colloidal silica was used (instead of sodium silicate) such organisms were met in every case, though all the tubes had been heated to between 125° and 135° C. for five minutes. After calling attention to the fact that all torulae are known to be killed by exposure for a minute or two in fluids to a heat of about 60° C., and that all ordinary bacteria and their germs are similarly killed when exposed for a few minutes to a temperature of 115° C., Dr. Bastian claims to have shown that there is "no further room for doubt upon the much-contested point whether or not living matter is still capable of coming into existence." He attributes the more constant results of his new series of experiments to the fact that he employed saline solutions containing colloidal compounds rather than organic solutions such as he and other experimenters had previously employed; he concludes that the colloidal molecules, which he regards as all-important, of these saline solutions are capable of resisting much higher temperatures than those contained in ordinary organic infusions.

It would be folly for the reader in his study to attempt to appraise the value of Dr. Bastian's observations. All that he is entitled to say is that the precautions Dr. Bastian took to avoid error in manipulation appear to have been very careful, and that *a priori* his conclusion is not unbelievable. The experiments, as we have said, are attended by many sources of fallacy. Whether he has succeeded in avoiding them all is a question which can only be answered by another skilled experimenter in the laboratory. We understand that the necessary experiments have been undertaken.

MOLIÈRE AND THE DOCTORS.

MOLIÈRE, who was the most unsparing critic of doctors, was effective because, unlike nearly all others who have scoffed at medicine, he thoroughly understood the subject. Hence not a shaft of his raillery misses the mark. He knew all the vulnerable places of the medicine of his day, and hit them with unerring aim. He did not make medicine ridiculous. He found a system which was ridiculous in itself, and by simply holding the mirror up to Nature he showed his contemporaries what a farrago of traditional formulas, empty pedantry, and antiquated superstitions the art of healing had become.

The medicine of the Greeks was founded on the direct observation of Nature; but in its passage through the Romans, the Arabs, and the early mediaeval writers it had been utterly corrupted. Men would not look at facts with their own eyes, but saw everything through the blurred spectacles of a misinterpreted authority. It was this medley of imaginary facts based on fantastic hypotheses to which the satire of Molière helped largely to give the death blow.

How did Molière come by the knowledge necessary for his purpose? In the first place there was his genius, which, like that of Shakespeare, assimilated without an effort whatever suited his purpose. Then he had received an excellent training under the philosopher Gassendi. Moreover, we think there can be no doubt that he was very carefully coached in all the details of the professional thought and life of his day. In his recently published book—*Molière: His Life and Works*—Mr. Brander Matthews says: "The scholars who have investigated the history of medicine in France are united in their admiration for the accuracy with which Molière has dealt with the doctors he was denouncing. They have constant praise for the certainty with which he sees the spirit that animated the French physicians of the seventeenth century and for the skill with which he caught the very accent of their speech. His was no haphazard criticism. It was rooted in knowledge. The consultation in *Monsieur de Pourceaugnac* is declared to be almost phonographic in its verisimilitude. Even when the comic dramatist was moved to frank caricature and overt burlesque, as in the ceremony of the *Malade Imaginaire*, he was only exaggerating what actually took place on similar occasions." It has been held by some that the ceremony of graduation is founded on that customary at Montpellier. There are touches in

the ceremony that recall that of the famous southern university, but there is also much which is obviously modelled on that of Paris.

There is a well-known story of Louis XIV asking Molière how he got on with his physician, and of the dramatist's reply: "Sire, we talk together. He prescribes remedies for me. I do not take them, and I get well." This is well enough for an epigram, but the painful truth is that he did not get well. For many years his life was what Pope says of his own, a long disease, and his death was dramatic in its circumstances. When playing the part of his own "candidate" in the mock graduation ceremony at the end of the *Malade Imaginaire* he became ill immediately after uttering the word *Juro;* he was removed from the stage to die within a few hours. The physician to whom he refers in the story above quoted was doubtless Mauvillain, who was a close friend of his, and who after various quarrels with the Faculty of Paris became its Dean. It is almost impossible to avoid the suspicion that Mauvillain, a man of humour as well as of learning, directed the hand of his friend and patient in his attacks on the Faculty. One has only to compare, to take two notable instances, the voluble but vague abuse levelled at doctors by Petrarch and the random shillelagh-play of Mr. Bernard Shaw with the deadly rapier thrusts of Molière, to recognize that the great comic dramatist of France must have been taught where to strike by some one who knew every weak joint in the armour of medicine. Molière had many friends among the doctors of his day. He had made acquaintance with some of them at Montpellier during his tour in the South of France under the patronage of the Prince de Conti, and in Paris he was on intimate terms with others, such as Liénard and Bernier, who, besides Mauvillain, frequented the salon of Madame de la Sablière. In that salon, according to Maurice Raynaud, the ceremony was composed, the sketch being prepared by Molière and the picture being touched up by the doctors present. Only the hands of experts could have supplied the intimate touches which show a close familiarity with the inner life of the Faculty. Molière had the boldness to put some of the Sun-King's own physicians on the stage. Gui Patin with malicious glee dots the i's. We agree with the witty doctor who writes under the pseudonym of "Pierre Pic," that Patin himself was used as a target by the satirist. Even in his own day he was called a "sanguinary pedant" from his fanatical belief in the virtues of bleeding. He bled a child of 7 thirteen times in a fortnight; he bled an infant of two months, and even a babe three days old. He practised what he preached, for he had himself bled seven times for a simple cold. Those who did not share his belief he consigned to eternal perdition. Of Guy de Labrosse, a physician who in his last illness refused to be bled, he said, "The devil will bleed him in the other world as a rascal, an atheist, deserves."

Molière was one of the great reformers of medicine, but it was not till long after his day that the reign of the lancet came to an end.

MEDICAL ATTENDANCE UNDER THE GOVERNMENT'S INSURANCE SCHEME.

A DEPUTATION from the British Medical Association had an interview last week with the Chancellor of the Exchequer with reference to the provision of medical attendance in connexion with the State sickness insurance scheme. With Mr. Lloyd George were other members of the Government. The representatives of the British Medical Association were Dr. E. J. Maclean (Chairman of Representative Meetings), Dr. Lauriston Shaw (President of the Metropolitan Counties Branch and one of its representatives on the Council), Dr. J. H. Taylor (Honorary Secretary of the Manchester and Salford combined Divisions and representative of the Branch on the Council), and the Medical Secretary. The deputation laid before the Chancellor the views of the Association on the subject as far as at present ascertained.

ELECTION OF DIRECT REPRESENTATIVE.

THE formal notice by the President of the General Medical Council, acting as returning officer, that an election for one direct representative for England on the General Medical Council will shortly take place, is published in our advertisement columns. The notice states that every nomination paper, accompanied by a declaration in writing by the person nominated that he consents to be nominated, must be received at the office of the General Medical Council, 299, Oxford Street, London, W., on or before April 29th, 1911. Each nomination paper must be signed by not fewer than twelve registered medical practitioners resident in England, each of whom must append to his signature his registered address and registered qualification or qualifications. England for the purposes of the Act appears to include Wales, although the Principality is not specifically mentioned either in the Act or in the notice. The vacancy to be filled up at this election is that created by the lamented death of Dr. McManus.

SCHOOL CLINICS.

THE rules drawn up by the Wandsworth School Treatment Centre, which are published in the SUPPLEMENT this week, will be read with interest by medical practitioners who in other parts of London, and possibly in other parts of the country, are being called upon to give attention to the manner in which school children found on medical inspection to be defective may best be treated. It will be seen that the conduct of the Treatment Centre is confided to a House Committee, acting on behalf of the members of the medical profession resident and practising in the area which the centre is to serve. This committee is to consist of five local medical men, not members of the staff, the chairman of the local Division of the British Medical Association, and the chairman of the staff committee. Each year a circular will be issued to all members of the profession resident and practising within the area asking them to apply, if they so desire, to be appointed to the staff. The staff will form a committee. Each member will be expected to devote from two to three hours to his department when on duty, and to see each day, on an average, eight new cases in addition to those he has told to attend for further treatment. Cases considered to be outside the scope of treatment of the Centre will be referred to a suitable hospital. If any case is considered by the medical officer unsuitable, by reason of the circumstances of the parents, for treatment at the Centre, he will report the case to the House Committee. That committee will work in co-operation with the district Care Committee, which will only issue an authorization to a parent to take a child to the Treatment Centre for treatment if the committee is satisfied that the parent cannot afford the fees of private medical practitioners.

INTERNATIONAL EXHIBITION OF HYGIENE.

THE remarks which we have felt it our duty on several occasions during the past nine months to make on the extraordinary attitude the Government has chosen to take up in regard to the International

Congress of Hygiene shortly to be opened at Dresden have, we are glad to note, been echoed in the lay press. The *Times* of April 5th said: "Surprise is expressed in a good many quarters that the Government are not supporting the British exhibit at the International Exhibition of Hygiene which is to be held at Dresden between May and October in connexion with the International Congress on Hygiene. All the civilized countries of Europe, together with Japan, China, Brazil, Peru, and even the Sudan, are officially interesting themselves in and supporting national exhibits. But Great Britain, which has been regarded as a pioneer in hygiene and medicine, is, officially, holding aloof." It has already been stated in the JOURNAL that strenuous efforts have been made by a committee, of which Sir Thomas Barlow is the President, to collect a fund sufficient to enable this country to make an appearance in an international display in which it should have taken the lead. To this committee the gratitude of the nation should go forth for rescuing it from the position in which it has been placed before Germany and before the whole civilized world by the shortsightedness of its rulers. At a meeting of the committee, held at the house of the British Medical Association on April 3rd, it was decided to proceed forthwith with the equipment of a pavilion for British exhibits at Dresden. The sum collected for the purpose, however, has not yet reached the amount required to ensure that Great Britain shall be adequately represented. A meeting of members of the House of Commons interested in the matter will, we understand, shortly be called with the object of making a last appeal to the Government to abandon its attitude of isolation and to give substantial help to an undertaking of the highest importance for the promotion of public health and the maintenance of good relations with foreign countries. In the meantime, a letter on the subject bearing the signatures of the Lord Mayor of London, Sir Thomas Barlow, and Lord Ilkeston, treasurer of the fund, has appeared in the *Times*. In this it is stated that the secretary of the committee, Mr. H. W. Armit, has conferred with the authorities in Dresden with regard to the possibility of carrying out the work with the funds available up to the present. As a result of the deliberations, a report was drawn up by the administration, in which the following points are set forth: (1) That the administration was gratified to note that the British Committee had made a splendid effort to secure worthy representation of England at the exhibition, notwithstanding the non-participation of the Government and various misunderstandings. (2) That, in recognition of this exceptional activity, the administration had decided to assist the British Committee in successfully carrying out its self-imposed task. (3) The administration considered that a participation on the part of England should be achieved, because all the great States will have their own national pavilions, because it would be a matter of deep regret to the English people and to the British Government if England were the only great State not represented in this humanitarian undertaking, and because the British Committee consists of those who had gained a clearer insight into the conditions, and who had deemed it their duty to make a special effort to save the British nation this feeling of regret. The report contains a tribute to England as the pioneer in hygiene, and in strongly advising the committee to proceed suggests that it would be highly desirable if a further £2,000 or £3,000 could be obtained in order that the committee may not be hampered in its work by want of means. The letter concludes as follows: "We are therefore again appealing to the liberal British public to support us in a work which has already been begun. We are hopeful that the small sum of £3,000 can be secured within a very short time, once it is publicly known how important is the work, for the sake of the reputation of Great Britain as one of the leading countries in hygiene, and in the name of international goodwill." To this appeal we can only add the expression of an earnest hope that it will not be made in vain. There are plenty of men in this country to whom the sum required would be a trifle.

QUACKERY A HUNDRED YEARS AGO.

THE *Times* of March 21st reproduced from its own columns of the same date in 1811 an amusing report of an action against a quack at the Kent Assizes held at Maidstone on March 19th, 1811. The quack sought to recover damages for an assault, and his counsel stated that he was a medical gentleman of considerable talents who had settled at Dover. The defendant was a publican in that town who had a servant afflicted with "a certain disease not to be named in delicate society," but so infectious in its nature that, without regard to any society, it communicated itself to all who ventured into the company of the sufferer. The plaintiff was called in and cured the woman of the disease. For this, with the sordid instinct common to fallen mankind, he expected due payment. "Instead of which" he was abused by the defendant's wife, who followed up a "torrent of rattling and indignant eloquence," like that with which the lady in *Don Juan* sought to cow her suspicious husband, by an assault on the person of the "doctor." Some time afterwards the publican met the plaintiff in the street and drove his elbow into his stomach, an offensive tactical manœuvre which he said hurt him very much. Another time when a soldier fell down in a fit in the street, and the plaintiff, who happened to be passing, was about to play the part of the Good Samaritan, the publican, who was present, urged the bystanders not to let him touch the unconscious man, saying that he would certainly kill him, as he had latterly caused the death of two children by his ignorance. This philanthropic interference was, it was alleged, followed up by another assault. Two witnesses proved the first assault, but not the latter. In cross-examination "they said they did not know how Dr. Smyth became a Doctor. He gave physic to the people at Dover, but he might be nothing more than a *surgeon*." The defence is a good example of the Buzfuz style of forensic oratory. We therefore quote the report in full: "Mr. Sergeant Shepherd said he would tell the jury a little about this Doctor Smyth who undertook to administer physic to the good people of Dover. The Lord knows where he came from, but he had not science enough to doctor a hog! True it was his client's servant girl had got the itch, and she gave it to her fellow servant; the poor children did not escape, and *Doctor* Smyth undertook to cure them. Here was his own handwriting (a paper which had been proved by one of the witnesses). 'To *merkurell anintement* for curing the *owld sarvante* of the *hitch*.' The bill was a specimen of the Doctor's literature, and his exhibition of his *merkurell anintement* was a specimen of his medical knowledge, for he fairly *salivated* all the family; and this it was which enraged his client, who he admitted gave him an elbow in his *guts* not half so mischievous as the stuff which he had poured into the *guts* of the defendant's family; and for this he had not only brought the present action, but he had also indicted the defendant at the Dover Sessions. When he himself was examined on his oath, on that

examination a Learned Friend asked the Doctor where he got his *diploma?* When his answer literally was, that he got his *deplorer* of the Mayor of Guernsey. Deplorable it was indeed that such a fellow should go about poisoning His Majesty's subjects; but he trusted the jury would mark their opinion of him and his action by a farthing damages, or if they went further it would be to give 'the knave a groat.'" Verdict for plaintiff, damages one farthing. Sergeant Buzfuz has not yet disappeared from the Law Courts, but his brazen eloquence is subdued to a pitch more suited to the delicacy of the public ear in these days when the manners of men—if not of women—are less ferocious than they were a hundred years ago. Quacks, like the poor, we have always with us, but they are of a more plausible and therefore more dangerous type than Dr. Smyth, with his "merkurell anintement." Perhaps the most interesting feature in the case is that the quack was not allowed to leave the scene of action with the honours of war. This is somewhat surprising, as it might have been expected that a British jury would have been impressed by a "deplorer" from the Mayor of Guernsey. We fear that in this age of light, juries do not always display so much intelligence.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.

PERHAPS the most interesting group of medical terms in the present section of the *New English Dictionary*[1] is that centring in and surrounding *scrofula*. This word, written also *scrophula*, and formerly *skurfula*, was in its early use plural after the late Latin *scrofulae*, swelling of the glands, and in its later employment singular after the mediaeval Latin *scrofula* or *scrophula;* it is a diminutive of *scrofa*, a breeding sow—supposed, adds Dr. Bradley cautiously, to be subject to the disease. Its derivation tempts one into devious paths of surmise as to the bearing of the matter upon the swollen neck of the pregnant woman (hyperthyroidism), and upon the synonymous term *struma* (from *struo*, I pile up). Its other synonym, "king's evil," takes us back in thought to the day when "young Johnson," as Boswell calls him, "was carried to London, where he was actually touched by Queen Anne," having afterwards a "confused but somehow a sort of solemn recollection of a lady in diamonds and a long black hood"; it did him no good, however, and Boswell was of opinion that he had not been carried far enough—"his mother ought to have taken him to Rome." The modern touching for king's evil is to be found in the gentle zephyr's breath, or it may occasionally be the boisterous blow of the east wind, in open-air sanatoriums. The words associated with *scrofula* are *scrofulide* (a strumous skin disease), *scrofulism* (a scrofulous diathesis), *scrofuloderma* or *scrofulodermia* (a skin lesion considered to be of scrofulous origin, and the condition of being affected with it), *scrofulose* (an obsolete term), *scrofulosis* (scrofula without tubercle), and *scrofulous* (caused by or affected with scrofula). An obsolete form is *scroffles*. Another term of somewhat mysterious derivation is *scrat*, meaning a hermaphrodite; it perhaps represents the Old English *scratta*, corresponding to the Old Norse *skratte*, a wizard, goblin, or monster, or to the modern Icelandic *skratti*, a devil; if this be the correct origin, it reminds us of the belief, at one time widespread, in the demoniacal production of teratological states. Other words with medical meanings are *scruff*, *scurf*, and *scurvy*, and it is a curious thing that *scurvy* came to be synonymous with *scorbutus* simply on account of the similarity in sound, more especially to be noticed in the French form *scorbut*. A special word of praise is due to the able editors of this *Dictionary* for the attention they always pay to the medical meanings of ordinary terms; thus, under *searcher* are found the two meanings of probe or sound, and of low power objective of the microscope, whilst under *seat* are noted the "seat of the skull" (apparently the cheek bone) and the locality of a disease (for example, the seat of the pain). So thoroughly are these meanings given that under *secondary* is found the special significance which attaches to the word (in its plural form) when associated with syphilis. The last word to which space allows a reference is *secundine:* this has three meanings, the well-known obstetrical one of the afterbirth (often in the plural, *secundines*); a botanical one (the second coat of an ovule, the other being the *primine*); and an entomological, the inner coat of a cocoon. Sir Thomas Browne, it may be added, seized upon the obstetrical use of the word and applied it figuratively in his characteristic fashion to death—"not till," he said, "we have once more cast our secondine, that is, this slough of flesh, and are delivered into the last world." It was once said of Johnson's *Dictionary* that a man could read it like a book; when the editors of the *New English Dictionary* are working at their highest level they turn out pages which can almost be enjoyed like a novel.

[1] *A New English Dictionary on Historical Principles.* Edited by Sir James A. H. Murray. Scouring-Sedum (vol. viii), by Henry Bradley, Hon.Ph.D.Heidelberg. Oxford: At the Clarendon Press; London, Edinburgh, Glasgow, New York, Toronto, and Melbourne. Double section. Price 5s. April 1st, 1911.

OPHTHALMIA IN EGYPT.

THE tent ophthalmic hospital system in Egypt, which used constantly to receive praise in Lord Cromer's reports, and to which attention has frequently been drawn in these columns, continues to increase in importance. It was due originally to the philanthropy of Sir Ernest Cassel, who late in 1902 offered £40,000 in furtherance of the study of ophthalmia in Egypt. In view of the size of that country, this money was used for the equipment and maintenance of travelling hospitals of a type with which experience had already been gained in Russia. From the beginning the work has been under the superintendence of Dr. A. F. MacCallan, who, as progress was made, somewhat modified the original scheme. After three years, when the system had been taken over by the Egyptian Government, he secured the erection of two permanent hospitals, one at Tantah and the other at Mansourah. They were intended to serve as bases for the travelling tent hospitals, and proved of great value. This year a third stationary hospital has been opened at Assiout, and a fourth, which will be built at Sohag, is already projected. Speaking at the opening of the Assiout Hospital, Dr. MacCallan stated that what he and those connected with him had in view was to provide each province with its own permanent hospital and a connected travelling tent hospital, which would visit the various villages scattered about each province. In some provinces more than one permanent hospital might, perhaps, prove to be required, but in any case an excellent beginning had been made. From the description which has reached us, the hospital recently opened appears to be entirely up to date from a scientific point of view and its equipment to be well suited to the needs of those for whom it is intended. Looking at it as a whole, this philanthropic enterprise is one of the most successful in existence, and all those who have been and are still connected with it, are greatly to be congratulated on a work which sooner or later will render meaningless the reproach implied by the term "Egyptian ophthalmia."

ISOLATION HOSPITALS AND HEALTH RESORTS.

AMONG annual reports to hand we find one relating to an institution which seems to have escaped notice in any of the reference books, probably because in point of constitution it is *sui generis*. This is the Delancey Hospital, Cheltenham. Its exact status is not described in the report, but, judging from internal evidence and the included financial statement, it is an isolation hospital which was established nearly forty years ago by private beneficence, and is now maintained partly by ordinary subscriptions and donations and interest on capital, partly by grants from the corporation of Cheltenham and district councils in that neighbourhood, and payments from certain schools, and partly by receipts for patients' maintenance. Patients in the Cheltenham General Hospital who require isolation because they have developed a zymotic disorder are admitted free, but for all others payments from 2*s*. a day upwards have to be made. The precise amount depends on the nature of the infectious disease from which the patient is suffering, whether the treatment is in a public or private ward, whether the person responsible for the payment is an annual subscriber of a certain amount, and whether the charge is inclusive or exclusive of medical attendance and medicines. Patients admitted to the public wards of the scarlet-fever block must always be attended by the medical officer of the hospital; but those in the public wards of the small-pox, diphtheria, and enteric blocks may be attended by their own medical man, as may all those who are in private wards. In point of financial prosperity, the institution appears to fall a trifle short of fully paying its way. From the corporation it receives £500 a year, and this fact, added to others deducible from the report, offers strong evidence that the institution is found of much value to the locality. This may well be the case, for a hospital which caters for the reception of cases of infectious disease among all classes can, if well managed, scarcely fail to justify its existence, more especially if the town concerned is one which, like Cheltenham, has claims to be regarded as a health resort. By no means at all health resorts is suitable provision made for the treatment of infectious disease, that is, accommodation likely to prove acceptable to persons sufficiently well off to pay for treatment in their own homes or lodgings. In all matters connected with infectious disorder the virtue of health resorts should be above suspicion. Otherwise lodging-house keepers, if no one else, must one day suffer, since a mere rumour that cases of infectious disease are scattered about a health resort is quite sufficient to ruin its season.

CREMATION IN THE HOME.

THE French have the reputation of being a witty people, but although they have shaken off belief in revelation, they are to the last degree credulous in other things. No invention seems to be too silly for a French paper to palm off on its readers when it deals with English matters. Not long ago it was gravely announced by the *Province Médicale*, on the authority of the *Presse Médicale*, that an English company had been formed to work a patent for the installation of cremation ovens in private houses. Our contemporary which professes to quote from a circular issued by the new company states that the apparatus is therein described as "a gas furnace, low but long and wide, covered with a steel case, into which the coffin is introduced." The corpse, it is said, is burnt in a few seconds. The oven must be heated an hour beforehand. For those who do not happen to possess this convenient arrangement among their household furniture, the company offers it on hire. All one has to do is to telephone to the right address and the company will forthwith send the apparatus with skilled operatives to work it. The price of the whole apparatus is given at £90, and the total cost of the operation as £2. But the company hopes that if its affairs prosper it will be able to reduce the price. Here, says our contemporary, is an idea which could only spring from the brain of an Anglo Saxon. To this we reply that the idea, wherever it sprang from, could only have been published in a French journal. This suggested addition to the comforts of the English home opens up wide possibilities. We are recognized as the pioneers of sanitation. Are not our water closets diffused throughout the civilized globe? The bath room has followed, though to a much more limited extent. A home crematory would certainly have several advantages, alike from the sentimental and the practical points of view. The crematory *à domicile* would sweep away once for all the mourning coaches, undertakers' men, and all the trappings and ceremonies that make death hideous to all but those ghouls who find an unholy joy in the last rites paid to a defunct fellow creature. With the home crematory available, the only funeral-baked meat would be the corpse of the deceased. Now that we are told to lead the simple life, here is a way of getting rid once and for all of one of the most artificial ceremonies of civilized life. A crematory in the home would also supply to unscrupulous persons who wished to get rid of inconvenient relatives an easy way of disposing of the compromising remains. Lest the lively but simple-minded Gaul should misunderstand us, we hasten to add the warning which Artemus Ward found necessary for his readers, that this is a "goak."

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN.

THE London County Council on April 11th considered the Report of the Education Committee recommending that, in reply to the Board of Education's strictures upon the present arrangements for medical treatment in London, an assurance should be given that a "complete scheme" will have been brought into at least partial operation by October, 1911 (BRITISH MEDICAL JOURNAL, March 25th, p. 716). The Finance Committee's report, published in the last issue of the JOURNAL (p. 836), to the effect that no such assurance should be given, was also submitted. Mr. Hayes Fisher, on behalf of the latter committee, moved that the Board be informed that the Council must reserve its liberty to terminate its arrangements for any medical treatment in the absence of an undertaking at an early date that the main portion of this expenditure will be borne by the national Exchequer. The subsequent speeches consisted of appeals addressed to Mr. Fisher by members of the Education Committee on both sides of the chamber not to persist in such an "ill-advised" amendment, which, it was urged, would be resented by the Board of Education as a veiled threat. Mr. Fisher, however, went to a division, when the voting was equal. The Chairman declined to exercise his casting vote, and the amendment fell to the ground. The exact form of the assurance to the Board of Education was then agreed in the following terms: "The Council will ensure that by October, 1911, the scope of the scheme will be clearly defined, and that substantial progress will have been made towards its efficient working."

Medical Notes in Parliament.

[FROM OUR LOBBY CORRESPONDENT.]

Sight Testing for the Merchant Navy.—Last week Lord Muskerry called attention in the House of Lords to the subject of vision tests for masters and mates in the merchant navy. He said candidates for Board of Trade certificates as qualified commanding officers must first undergo a test both for colour and vision. The present method of making the test had raised a storm of hostile criticism. A man might fail to pass whose vision for form and colour was quite right, whilst another man who was dangerously colour-blind might obtain his certificate. Cases illustrating this were given. He criticized the composition of the Departmental Committee appointed to consider the question, for there was a suspicion that efforts were being made, not perhaps towards wholesale jobbery, but towards engineering of a most improper character in order to whitewash the present tests. There was a great deal of indignation in shipping circles in regard to the new form vision test which was to come into operation in 1914. He moved for a return showing the accidents which were due to defective form vision, and for a statement of the reasons why the Board of Trade had adopted new tests. Lord Hamilton of Dalzell said he could not enter into a discussion of the merits or demerits of the sight tests. A Departmental Committee was considering them, and when they reported the President of the Board of Trade would deal with the whole matter. This was a highly scientific and technical matter, and the Committee, which was thoroughly representative, would go into it very carefully. He would consult with the President of the Board of Trade upon the question of laying papers on the table. Lord Avebury thought his noble friend might very well be satisfied that the whole matter was in the hands of an excellent committee. After a few words from the Bishop of Bangor on the importance of trustworthy tests, the motion was withdrawn.

Health Visitors.—Mr. Charles Bathurst asked the President of the Local Government Board whether there would be overlapping as between the existing county nursing associations and the district councils, under the Health Visitors Bill, in the provision of assistance and advice in maternity cases in the rural villages; and, if so, whether he would amend the above bill to prevent such overlapping and to secure effective co-operation between them. Mr. Burns replied that the adoption of the Notification of Births Act required the consent of the Local Government Board. Before consenting it was the Board's practice to inquire as to the means available for utilizing, to the advantage of the mothers and infants, the information as to births which would be received under its provisions. In some cases it had been found that no existing agencies were available, and that it was desirable that the local authority should be able themselves to appoint health visitors. He did not think there was any danger of serious overlapping. In reply to a further question Mr. Burns said that there were twenty county nursing associations affiliated to the Queen Victoria's Jubilee Institute for Nurses, and several other county nursing associations not so affiliated. Grants were in most of these cases made to the associations by the county councils or the education committees. The work of these voluntary associations was not under his control, but he had no doubt they rendered efficient help to the local authorities in assisting to combat sickness and mortality. He had official cognizance of these nursing associations, and felt that the Health Visitors Bill would assist these ladies in their work. In reply to a further question by Mr. Charles Bathurst, Mr. Burns answered that he was unable to state in how many cases women had been appointed to perform the functions of health visitors by county and district councils, nor was he aware of the authority under which such appointments had been made. In several instances officers, such as inspectors of midwives, school nurses, and assistant inspectors of nuisances had been utilized to give advice as to the nurture and care of infants.

Sale of Poisons (American Practice).—Mr. Neville asked the Home Secretary whether he was aware that in the United States of America no poisonous substance could lawfully be sold by retail unless the bottle or other receptacle containing the same bore a label stating the name of the poison, its character, whether alkaloid, narcotic, or otherwise, and the appropriate antidote, remedy, or treatment to be used in case the poison was improperly taken or applied; and, if so, whether he would consider the advisability, by Order in Council or otherwise, under the Poisons and Pharmacy Acts, of making regulations that a label giving similar information should be affixed to every bottle or receptacle containing poison sold by retail in this country. Mr. Churchill replied that he was informed that the Privy Council Office had no knowledge of the American regulations referred to. No evidence had reached that office which would show that there was any pressing need for an amendment of the existing poison regulations in the direction indicated by the question, and it was considered doubtful whether it was desirable to multiply the purely mechanical precautions of the kind suggested.

Small-pox and Vaccination.—In reply to Mr. Phillip Foster the President of the Local Government Board has issued the following table, giving particulars respecting the patients removed to the hospitals of the Metropolitan Asylums Board during the four weeks ending April 1st:

	Ages of Small-pox Patients.				Total Cases.	Deaths Among these Cases.
	0-10.	10-20.	20 35.	35 and over.		
Vaccinated ...	0	1	2	2	5	0
Unvaccinated ...	4	1	0	0	5	1

None of the cases were stated to have been revaccinated. Mr. Churchill informed Mr. Henderson last week, with reference to certificates of conscientious objection, that a fee authorized by a table of justices' clerks' fees could be demanded only when a clerk had rendered the service in respect of which the fee was authorized. He was advised that when a declaration was made before a justice in the absence of the clerk no fee should be demanded.

Vaccination of Aliens.—In reply to a further question by Mr. Astor, Mr. Burns stated that, as far as he was aware, it was not usual to examine aliens for the purpose of ascertaining whether they had been vaccinated. It was the duty of the vaccination officer to see that all children resident in his district were duly accounted for as regards vaccination.

Medical Officers of Health (Residence).—In reply to Major Henderson, Mr. Burns has stated that there was no statutory requirement that a medical officer of health should reside in his district, and the Board did not regard it as essential that he should do so. Most medical officers of health, however, did reside in their districts, or, in the case of medical officers of health acting for a combined area, in one of their districts, or within easy reach of them, so that they were able at a short notice to attend to any urgent matter.

The Protection of Animals Bill, which passed its Committee stage in Standing Committee A last week and was reported, with amendments, to the House, deals only with general cruelty to animals, and does not refer to vivisection. Mr. Greenwood, who is in charge of the bill, has put the report stage down for April 24th.

Scotland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

EDINBURGH ROYAL INFIRMARY.

AT a special meeting of the managers of the Royal Infirmary on Thursday, April 6th, Lieutenant-Colonel Sir Joseph Fayrer, Bart., R.A.M.C., was, out of a short list of six, appointed superintendent in succession to Colonel Warburton, who is retiring. The new superintendent is 52 years of age, and has had a distinguished career. He was educated at Rugby and Trinity College, Cambridge. He took the degree of M.A.Camb. in 1885, and received his medical education in Edinburgh and at St. George's Hospital. He took the degree of M.B St. Andrews in 1887, and in the same year became a Fellow of the Royal College of Surgeons of Edinburgh by examination. He proceeded M.D. in 1889. He entered the Royal Army Medical Corps in 1886, taking first place in the competitive examination in March of that year. He has been on duty at Edinburgh twice, in India for fully six years, and in the Royal Horse Guards for three years; in 1903 he was appointed Staff Officer and Secretary to the Principal Medical Officer of the London District; from 1904 to 1909 he was Medical Officer of the Duke of York's Royal Military School at Chelsea, and since 1909 he has been in charge of the Military Hospital at Hong Kong. He succeeded his father, the first baronet, in May, 1907.

TREATMENT OF EPILEPTICS.

At the monthly meeting of Glasgow Parish Council on April 4th, the Special Committee on Epileptics presented a report recommending that 46½ acres of the lands of East Muckcroft should be leased from the Lunacy District Board as a site for a colony for epileptics, the Council to have the right of purchase at any time. Sketch plans of the proposed colony were fully discussed by the Committee and recommended to the Council for adoption. A report by the master of works was also included, suggesting that four villas of one story in height be erected, with accommodation for fifty patients each, provision to be made for two additional villas when required. In proposing the adoption of the minutes the Chairman of the Council stated that a letter had been received from the Local Government Board approving of the site. Nothing would be done with the buildings until the Council had approved of the final plans and estimates, all that was at present desired being the approval of the general principle and the ground plans. A proposal was made to delay the matter as £50,000 might be involved, but the minutes were ultimately carried with only one dissentient.

LUNACY AND PUBLIC HEALTH.

On April 5th, at a meeting of the Royal Philosophical Society of Glasgow, Dr. John Carswell read a paper on the relation of lunacy to public health administration. Dr. A. K. Chalmers, M.O.H. for Glasgow, presided. Dr. Carswell stated that there were over 18,000 certified insane persons in Scotland, about 16,000 of whom were maintained at the public expense at an annual cost of over £400,000. Lunacy administration, though costly, was not extravagant. The distribution of responsibility between the General Board of Lunacy, district lunacy boards, and parish councils, while it had advantages, required revision. The General Board lacked statutory powers to enable it to meet present requirements, and district boards and parish councils had no direct interest in the occurrence of insanity as a fact of social, scientific, and medical interest. Lunacy administration stood at present outside the scope of public provision for the prevention of disease, but no adequate view of public provision for securing good national physique could be obtained if the conditions that affected brain growth and the stability of the nervous system were excluded. This whole field of inquiry required investigation—why 8 per 10,000 persons living in one district of the city became insane last year and only 1.6 per 10,000 in another district, and why high death-rate and high lunacy-rate, low death-rate and low lunacy-rate went together. There were also new problems connected with the education of mentally defective children, of whom there were at present over 800 in special Glasgow schools. Nearly 1 per cent. of the children of school age in Glasgow were mentally defective. The administrative machinery required readjustment, and public opinion required education and enlightenment on this very important aspect of the question of insanity.

THE PREVENTION OF PHTHISIS.

Dr. W. L. Reid, chairman of the medical advisory board of the Consumption Sanatoriums at Bridge of Weir, has addressed, on behalf of the board, a letter to the Lord Provost and Corporation of Glasgow dealing with the prevention of consumption. The letter says:

"After an extensive experience of consumption and its treatment, gained in connexion with the above sanatoriums as well as in private practice, the board has come to the conclusion that if the scourge of consumption is to be controlled and, it would hope, removed from our midst, it can only be effected by the removal of the slum properties in the city, which, besides being bad for the people morally, form a most favourable breeding ground for this disease. In the present condition of things the board considers that, however valuable sanatoriums may be in the treatment of consumption (and they put much value on sanatoriums), the city should aim at prevention rather than cure. The board is also strongly of opinion that the treatment of patients suffering from consumption in a private house is defective in most cases, and in many cases is a serious danger to the community, and it thinks that the time has now come when the Corporation should face the position by declaring consumption an infectious disease and have it dealt with as such, and, among other measures, provide hospital accommodation for treatment."

THE CONSUMPTION CRUSADE IN SCOTLAND.

Sir William Younger, Bart., is making arrangements for a tuberculosis exhibition in connexion with his advocacy of a scheme for combating consumption as a Scottish national memorial to King Edward. The exhibition, which is being organized by Sir William Younger at his own expense, is intended to travel throughout the county of Dumfries, where he resides, in order to interest and educate the people in the various towns and villages. The exhibition, which will be on lines similar to those held in London and several large towns, is being prepared by Dr. Perkins, Secretary of the National Association for the Prevention of Consumption. It is proposed to open the exhibition at Moffat about Easter.

THE TRAINING OF DENTISTS.

At the annual distribution of prizes to students of the Incorporated Glasgow Dental Hospital, Dean of Guild Henderson, who presided, said the hospital had been in existence for twenty-six years, and 170,000 cases had been dealt with in it. It would be impossible to have first-class dentists without a training college, and this college had now obtained more commodious premises, and was deserving of every support. Dr. Barlow referred to the interest taken in the institution by the Royal Faculty of Physicians and Surgeons and the importance of some knowledge of medicine and surgery to members of the dental profession. Dr. W. D. Anderson, dean of the hospital, referred to the work done by the institution during the past year, after which Lady Bilsland presented the prizes to the successful students.

HONORARY DEGREES AT THE UNIVERSITY OF ABERDEEN.

At a graduation ceremonial of Aberdeen University on Wednesday, April 5th, the honorary degree of LL.D. was conferred on Arthur Robertson Cushny, M.A., M.D.Aberd., F.R.S., Professor of Materia Medica and Pharmacology, University of London; and on Arthur Keith, M.D.Aberd., F.R.C.S., Conservator of the Museum and Hunterian Professor, Royal College of Surgeons of England.

Ireland.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

Old Age Pensions and Poor Law Relief.

Since the removal of the Poor Law relief disqualification for the receipt of an old age pension at the beginning of this year, much doubt has existed as to the law in relation to pensioners who seek the relief of a workhouse infirmary. The attitude of the Local Government Board on the subject is to some extent cleared up by a communication sent to the Gorey Board of Guardians. It is stated that the repayment of the cost of maintenance in a workhouse will not in itself exempt a pensioner from disqualification, but in the case of a person admitted to a workhouse infirmary who wishes to pay, and does actually pay, the full average cost of maintenance therein, no disqualification exists. The cost of maintenance can, however, only be recovered by the guardians if the pensioner voluntarily, after receiving his pension, chooses to use the whole or part thereof to defray expenses.

Emigration from Ireland.

The report of the Registrar-General for Ireland on emigration during the year 1910, which has just been published, states that the total number of emigrants during the year was 32,923 (18,113 males and 14,810 females), an increase of 3,693 as compared with 1909. Analysis showed that over 7,000 of the number had their passage outwards previously paid in America. Of the total number, 86.9 per cent. were between the ages of 15 and 35. Leinster furnished 4,258 of the total; Munster, 8,330; Ulster, 12,271; and Connaught, 7,598. In spite of the increase during last year, the statistics of succeeding decades showed a steady decrease from an average of nearly 90,000 yearly during the period 1880–89, to an average of 35,886 during the period 1900–09. The destination of about three-fourths of the emigrants last year was America.

Recognition of Dispensary Medical Officer.

At a recent meeting of the Rathdown Board of Guardians a letter was read from Dr. Hamilton, medical officer of Arklow, calling attention to the fact that, by reason of the recent severe outbreak of typhus fever in Arklow, he had been, owing to the heavy work entailed, practically deprived of private practice for a period of two months. During the continuance of the epidemic Dr. Hamilton, in addition to rendering medical attention, had been compelled, for want of proper assistance, to carry patients from their beds to the ambulance, from the ambulance to the hospital, and in the case of those who died, to carry the dead bodies to the mortuary. The guardians present spoke most enthusiastically of Dr. Hamilton's services, and unanimously voted him an honorarium of £50.

Holidays of Dispensary Medical Officers.

At a recent meeting of the Macroom Board of Guardians, the following resolution was proposed and adopted:

> That this board, viewing with a sense of danger the ever-growing cost to the ratepayers of medical services under the Poor Law, outside the question of standing salaries, hereby order that from January 1st, 1911, the holiday period of medical officers be limited to two weeks instead of four, subject to the approval of the Local Government Board.

The proposer of the resolution stated that he had no wish to curtail the holidays of medical officers provided that the latter would pay for their substitutes for the second fortnight. It is satisfactory to know that resolutions of this sort are not in operation until the sanction of the Local Government Board has been obtained.

Queenstown Hospital.

At a meeting of the Queenstown Hospital Committee on March 30th, a communication was read by Dr. R. H. Townsend from a lady residing in England stating that she wished to send in her lifetime £100 to the proper place in Queenstown for the investigation of tropical diseases, and knowing that he (Dr. Townsend) was one of the doctors who attended Queenstown Hospital, requested him to receive the gift and bestow it as she suggested. Dr. Townsend replied to the letter, stating that owing to the great falling off in ships from foreign countries calling at Queenstown Harbour in late years, the opportunities for investigating and treating tropical diseases had much diminished, but the Hospital Committee was directing its energies to the task of combating consumption, a disease unfortunately always rife, and that the committee were anxious to provide isolation wards for incurable cases, as well as detached wards for those who had a prospect of recovery. In reply to that letter, Dr. Townsend received a further communication from the lady requesting him to present a cheque for £200 towards the much-needed fund to carry on the good work referred to, adding that she wished to remain anonymous. The chairman and members unanimously accorded their warm thanks to the lady, and desired their secretary to forward a letter of thanks. Several sites in the grounds of the hospital were subsequently examined by the committee for the wards in connexion with the project.

North Dublin Union.

As a result of a recent report by the Local Government Board's inspectors on the management of the North Dublin Union, the board of guardians has now drawn up a scheme of improvements which are to be carried out. It includes the allocation of a separate ward for the infirm, so as not to have them mixing with the workers; a more efficient staff of nurses for the sick, and arrangements for training nurse probationers; a better maternity ward is to be made use of, and in future all imbecile children are to be removed to a home at Cabra.

Motor Cars in Dublin.

Some time ago the Dublin Corporation passed a resolution requesting the Local Government Board to fix a rate of speed for motors at the same limit as is prescribed for horse traffic within the Dublin city boundary. In consequence of the serious results that such a by-law would impose upon medical motorists practising in Dublin, a meeting was convened last week with the object of organizing medical resistance to the proposed restriction. The first resolution, which was proposed by Sir Christopher Nixon, was to the effect that, in the opinion of the meeting, further restrictions on motor traffic in the city of Dublin were unnecessary for the protection of the public and would seriously hamper members of the medical profession in the discharge of their duties. In seconding this resolution, which was adopted, Mr. Arthur Benson pointed out that the statistics in London showed that the motor car was the safest vehicle on the streets. A committee was appointed for the purpose of instructing counsel to lay the views of the meeting before the representative of the Local Government Board appointed to make the inquiry and to take such further steps as might be desirable.

Bequests to Dublin Hospitals.

By the will of the late Mr. Charles Sexton, who died on February 15th last, a sum of nearly £12,000 has been left to Dublin charities. Several of the clinical hospitals receive legacies of from £1,000 to £500.

Ulster Hospital for Children and Women.

The annual meeting of this institution was held in the hospital on March 30th; Mr. J. Blakiston-Houston, D.L., occupied the chair. The annual report showed an increase of patients, and also an increase of annual subscriptions, which, however, was not sufficient to prevent a deficit of £180 at the end of the year. The medical and surgical report was read by Dr. V. Fielden. Funds were in hand to start the building of the new hospital, and plans have been submitted and approved of, so that a start will be made in the near future. The board has rented an adjacent large rectory, so that the work may be carried on without intermission, although of course under difficulties.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

MANCHESTER AND DISTRICT.

HOPE HOSPITAL.

IT is now approaching two years since the Salford Division of the British Medical Association began a determined attempt to obtain an improvement in the medical arrangements at the Salford Union Infirmary at Hope. The principal points on which the Division laid special emphasis were that there should be a medical superintendent with full administrative powers, and that such a salary should be offered as would obtain the services of a fully-experienced medical man, instead of the miserable salary paid to the former senior resident medical officer, and, further, that there should be two assistant resident medical officers instead of one. The majority of the guardians strongly opposed these suggestions for a time, and it was found necessary to insert a warning notice in the BRITISH MEDICAL JOURNAL and the *Lancet*. The result of this was that the guardians were quite unable to obtain medical officers on the old terms, and for some months the hospital had to be staffed by locumtenents. The Local Government Board then intervened, and after consultation with the guardians a scheme was proposed almost identical with that first suggested by the Salford Division. This received the sanction of the Local Government Board and the warning notice was withdrawn. The guardians' first appointment of a medical superintendent was so far unfortunate that the incumbent's health did not allow him to remain more than a few months. The present medical superintendent, Dr. Austin, only took up his duties about three months ago, but has already shown his ability and fitness for the post, and in spite of the disturbed condition in which the hospital must have been for the previous eighteen months, something like order is now being evolved. This is shown by the remarks of the chairman of the hospital committee, who, in acknowledging last week a vote of thanks on his retirement, said that he was pleased to know that some splendid improvements had taken place during the two years he had been chairman. With regard to the medical staffing of that institution, every one would agree with him that what had been accomplished in that respect was certainly an improvement and certainly for the better. No one would question that to-day. We feel little doubt that the new arrangements offer far greater possibilities for a more successful working of the hospital, and with the loyal support of the guardians the medical superintendent will be enabled to improve the condition of the patients to a much greater extent than was ever possible before.

LEEDS.

ANNUAL MEETING OF THE GENERAL INFIRMARY.

AT the annual meeting of the General Infirmary, on March 30th, when the chair was taken by the treasurer, Mr. Charles Lupton, there was a good attendance of the subscribers and friends of the institution, and Mr. Lupton's speech in moving the adoption of the annual report and balance-sheet was of more than usual interest. He had to record that, in spite of the curtailment of the accommodation as a result of the fire on October 7th, which put the whole of one block out of action for the remainder of the year, the number of in-patients was in excess of that in any previous period of twelve months. Including the patients treated at the Robert Arthington and the Ida semi-convalescent hospitals, the patients treated in the wards numbered 7,935. Were it not that there had been a marked increase in the number of emergency cases, and in the number of accidents, and also in the number of those who, having been under treatment in the wards, had been transferred to the out-patient departments, a slight decrease in the number of out-patients would have had to be recorded; as it was the numbers were slightly in excess of last year. Commenting on the reduction of the average time that each patient remained under treatment in the wards of the hospital, which was 17½ days as against 18½ for 1909, Mr. Lupton said he could not view that lessening of the time with satisfaction, because he knew it was due to the great number of patients waiting for admission, and that it indicated an amount of pressure on the resources of the infirmary which was a cause of anxiety to all concerned. Unless the great scheme of reconstruction of the infirmary and the addition to the accommodation which was contemplated could be carried into effect, he did not see how this overpressure could be neutralized. In reference to the out patient department, Mr. Lupton told the meeting that its general working had been under careful discussion, and that it was hoped that a scheme of improvement would shortly be laid before the governors. The association of almoners with the work of the infirmary, tried during the past year, had proved highly beneficial, and it was a striking comment on the efficacy and value of their work that the three institutions which had joined in the experiment had each of them decided to continue the use of almoners. Mr. Lupton expressed the opinion that still greater use would be found for these officials in the future working of the infirmary. Turning to the financial side of the report, the outlook was not so favourable; the expenses had gone up and the income had shrunk. Food had cost £300 more than in the previous year, the instrument and drug bill had gone up considerably, and the amount expended in rates, in ordinary repairs, and in nursing had all increased. In the item of extraordinary expenditure an increase of £2,000 had to be noted—a sum which included that expended on the remodelling of two of the wards. The decrease in the income was due mainly to a diminution in benefactions, and especially in legacies. Referring to the recent endowment of three beds, Mr. Lupton expressed the hope that this manner of benefiting the infirmary and at the same time of honouring the memory of friends would appeal to an increasing number of those interested in the work of the infirmary. He paid a warm tribute to the memory of the late Lord Airedale, who had always been one of the warmest friends of the infirmary. The interest he took in its work he inherited from his father, who, he reminded the meeting, was the chairman of the building committee of the hospital in which they were met, and who was largely responsible for the ambitious lines upon which it was planned. Lord Airedale had the same interest and the same courage as his father. The mallet and trowel presented to his father when he opened the infirmary in the year 1868 he regarded as his greatest treasure. Mr. Lupton gave a very full and interesting account of the aims and aspirations of the board in connexion with the scheme of extension and reconstruction, but these have already been dealt with in this column. The necessity for new operation theatres was emphasized by the statement that in Manchester there was one theatre for every 50 patients, in Newcastle one for every 59, and in Leeds one for every 135. Those interested in research will be pleased to note Mr. Lupton's appreciative remarks on the value to the acting staff and to the patients of the work done in the pathological department and in the clinical laboratory. "Most of you," he said, "will have watched the progress of medicine and of surgery sufficiently to be aware that through pathology it is likely that we shall have the greatest discoveries in medicine that have occurred in centuries. It has already made great changes in surgery. It is essential that this department should be kept fully up to date." In view of the necessary extension of the infirmary it had become necessary to acquire more ground immediately around the present buildings, and progress was being made with a scheme which, by the acquisition of property adjacent to the infirmary, and by the diversion of certain roads, would, if carried out, be of benefit alike to the city and to the infirmary. Finally, Mr. Lupton made a strong appeal to all present to

bring to the notice of the public of Leeds and of the surrounding districts the urgent need of securing that the King Edward memorial fund should shortly be completed by the attainment of the sum originally mentioned—namely, £150,000.

WEST YORKSHIRE.

BARNSLEY OPEN-AIR SCHOOL.

AN interesting report on the Queen's Road Open-Air School has recently been issued by the school medical officer (Dr. F. J. Sadler) and the secretary (Mr. W. P. Donald). The proposal for the foundation of such a school in Barnsley arose on a report in 1908 by the school medical examiners that 126 (or 3 per cent.) of the 3,800 children they had examined during the year were suffering from tuberculous disease of the lungs. It was determined to open a school for four months in 1910 for these consumptive children. The Bradford Open-Air School (which has been discussed previously in this column) was taken as the model; and a great deal of the necessary information was obtained from Dr. Crowley's *The Hygiene of School Life* (also founded on Bradford experience). The improvement in the condition of the children is considered under two headings—(1) the medical, (2) the educational. The medical requirements were considered to be the following: (1) The children must be all day in the open air; (2) suitable diet; (3) two hours' rest in the open-air after dinner; (4) shower bath twice a week; (5) skilled supervision. All the children, with one exception, had definite signs of tuberculosis of the lungs; 20 boys and 26 girls attended the school of whom 35 were present during the whole period. The following table shows the improvement that took place in these children:

	Average Age.	Average Increase in Weight.	Average Increase in Height.	Average Increase in Chest Expansion.
14 boys	9 years	6 lb. 7 oz.	1.2 in.	$\frac{13}{16}$ in.
21 girls	9$\frac{3}{4}$ years	5 lb. 8 oz.	1.3 in.	0.7 in.

In 21 cases it was impossible at the end of treatment to detect any defect of the lungs; in 24 cases there was improvement; in only 1 case was the lung in the same condition, but even here the child had increased 6$\frac{3}{4}$ lb. in weight, grown 1$\frac{1}{4}$ in., and the chest expansion had increased by 1 in. From an educational point of view it was found that most of the children had gained in general intelligence and power of application. It is evident from this report that the systematic classification and attendance to the physical condition of the child results in both bodily and mental improvement.

CONSUMPTION IN BRADFORD.

Great interest is being taken in the Tuberculosis Exhibition which is to be held in St. George's Hall, Bradford, from May 25th to June 11th, and committees are to meet at regular intervals to make the necessary arrangements. It is hoped that the campaign may have a great educative influence on the working classes in connexion with the hygiene of phthisis.

OPENING OF THE WEST RIDING NURSES' HOME.

Some few years ago a movement was started in the West Riding having for its object the provision of trained midwives and nurses in the rural districts where it was impossible for a trained midwife to make a living. It is the intention of the promoters that the midwives, all of whom are, of course, the holders of certificates, shall undertake a certain amount of general nursing. This part of the scheme may be regarded as open to a certain amount of adverse criticism. The midwives may or may not be trained nurses; if they are, then the amount of good they may do in a village or rural centre would be great; if they are not, and take up their duties only with the knowledge and experience implied by their six months' training as midwives, then it may be held that, though the work which a sensible woman of this kind may do in the way of general nursing may be of great value and much better than had been possible in the neighbourhood before, the association may find that it has assumed an unwise responsibility in sending out such women as nurses, even though it is fully understood, as it is doubtless intended it shall be, that they are not supposed to be fully trained nurses. Two years ago the work of the society was begun in one centre and with one nurse, and now there are seven centres and ten nurses. A general home for the work, which was opened on April 3rd, is situated in that part of Hunslet most remote from the centre of the town, where two of the poorer parishes—namely, those of St. Hilda and St. Saviour—are manifestly calling loudly for assistance. It has been matter of arrangement that no work will be undertaken within the area dealt with by the Leeds District Nursing Association.

LONDON.

SHADWELL CHILDREN'S HOSPITAL.

ON Tuesday, May 9th, Princess Marie Louise of Schleswig-Holstein has graciously consented to open some additions that have been recently made at the East London Hospital for Children. One of these is a spacious and lofty operating theatre for out-patients. It has been erected on land newly acquired for the purpose by the hospital authorities adjoining the main waiting hall. *En suite* with it are rooms for the preparation and recovery of patients, and another with the requisite sterilizing apparatus. A short distance away are two other large rooms for the senior and junior casualty officers, who have hitherto worked at considerable disadvantage, owing to defective accommodation. All these rooms are lined with white glazed tiles, and so constructed as to admit of ready disinfection at any time. In addition there has been constructed a shelter on the roof of one of the wards for the open-air treatment of patients for whom it may be deemed desirable. It takes the place of a temporary shelter which has been in use in the same place for some years past, and proved of infinite value, in spite of many and obvious shortcomings. Both the temporary and present shelters have been provided directly by the Ladies Association of the hospital.

THE OUTBREAK OF SMALL-POX.

The medical officers of health for the boroughs of Poplar and Stepney have each issued reports on the recent cases of small-pox in their districts and the measures adopted to check the outbreak. Once on the alert, the various authorities concerned entered upon a vigorous and combined campaign against the spread of the disease. The reports speak of frequent intercommunication between the Local Government Board, the sanitary authorities, and the medical department of the Education Board. An unrecognized case of small-pox was unfortunately admitted to the Mile End Infirmary. The patient was a girl aged 12, vaccinated in infancy, and the symptoms were mistaken for chicken-pox. The true condition was not diagnosed until fifteen days after her admission. A demonstration of the highly infective nature of small-pox was the result. During the following eight days no fewer than 33 cases were removed from the Mile End Infirmary to the small-pox hospital and several others who had visited the infirmary were also infected. The work of dealing with the contacts appears to have presented many difficulties, but was energetically performed. Dr. Thomas (Stepney) in his report says: "The work of tracing contacts has been a very arduous one. A large number of contacts had either given false addresses or moved"; also, "Unfortunately the list of contacts is not a complete one." The risks run by the public at such times are shown by the fact that among the contacts there were instances of persons who travelled daily on the District Railway, hawkers from door to door, workers

at laundries, and a postman. Isolation, vaccination, or revaccination were adopted where possible, and by these means what might have proved to be a serious epidemic was averted. Unprotected children were excluded from school attendance for periods varying from two to three weeks. Children from eighteen schools were excluded from attendance.

The difficulty of diagnosis of modified small-pox in the vaccinated is undoubted. If the same condition as to vaccination obtained in this country as in Germany, such an error would not be a serious matter. Indeed, such a case, when correctly diagnosed, would be removed to a general hospital in Germany, where reliance is placed on the vaccination and revaccination of all persons by whom the case would be surrounded. The fact that modified small-pox is liable to be overlooked or unsuspected, strange though it may seem, has been used as an argument in favour of relaxing or dropping the vaccination laws. The adoption of the German method would certainly be a more rational and sound course.

The difficulty of dealing with the contacts, great as it is at present, would be insuperable in an unvaccinated community. It should not be forgotten that mild cases may occur in the unvaccinated, though much more rarely than in the vaccinated, and these cases are liable to be undetected as small-pox.

According to the official returns of the recent outbreak issued a few weeks ago, the fatality among the vaccinated was 2.7 per cent., as compared with a fatality among the unvaccinated of 38.4 per cent. The President of the Local Government Board has since given some further statistics, which will be found in our Parliamentary columns. Mr. John Burns has also stated recently that the most effective means of preventing the spread of small-pox from the person attacked consisted in removing the patient to a place of isolation and surrounding him by protected persons. This statement implies belief in the efficacy of vaccination as a protection against small-pox, and is difficult to reconcile with a policy that disregards the danger attending the great increase in the number of unprotected persons in the community who are now legally exempted from vaccination.

Tasmania.

[*FROM OUR SPECIAL CORRESPONDENT.*]

THE HEALTH OF MINERS.

"THE Cause, Effect, Incidence, and Prevention of the Pneumokoniosis of Quartzminers," by J. S. Purdy, M.D., Chief Health Officer for Tasmania, forms part of an interesting report by the Secretary for Mines for the year 1909. Dr. Purdy reviews briefly the general subject of pneumokoniosis, with special application to the miners of Tasmania. Mining is, comparatively speaking, a young industry in the Colony. With the experience of the Mother Country and of South Africa and India to guide her, Tasmania has commenced mining with distinct advantages from a hygienic point of veiw. In 1880 the number of persons employed in mining was 1,653, and in 1909 the numbers had risen to 6,054. Dr. Purdy points out that miners' lung disease is insidious in its origin, is of gradual development, and that for a period it does not impair health. When a miner has become unfitted for work by pneumokoniosis it is a sign that the disease is already well established. The malady is due to the action of irritating particles of dust upon the lung, but inhalation of the fumes of dynamite, and of oily matters floating in the air as the result of rock-drilling, is also regarded as partly responsible for the pulmonary changes. Commencing as a catarrh of the bronchial tubes and of the pulmonary alveoli, there follow fibrotic changes in the lungs, which extend through the organs and induce thickening of the pleura. The shutting off of tracts of pulmonary tissue for respiratory purposes by fibrosis explains the dyspnœa from which the men suffer. Although excavation had taken place in most of the lungs examined after death, there were no signs of tuberculous disease. The non-tuberculous origin of pneumokoniosis is strongly advocated by Sir Thomas Oliver, of Newcastle, in Allbutt and Rolleston's *System of Medicine*, also in a report by the South African Medical Society, but Haldane found 17 cases tuberculous out of 23 examined in Cornwall. Dr. Purdy accepts the theory that the disease is the result of the inhalation of hard, gritty siliceous particles of dust, since these can be recovered from the lung after death. This circumstance explains, too, the fact that the mining processes which are the most dangerous are the "raising" and "driving"—just those in which the presence of dust in the air is greatest and where ventilation is inadequate owing to the work being carried on in cul-de-sacs. Purdy, like Summons of Bendigo, alludes to the concurrent pleurisy met with in the early stages of pulmonary fibrosis, and regards the diminished expansion of the chest as a sign of considerable importance, especially when accompanied by dullness on percussion in the axillary region over the base of the lung. Prolonged expiration, bronchial breathing, and creaking sounds heard during inspiration and expiration, with cardio-respiratory murmurs, are the physical signs upon which stress is laid. The irritation of the lung by particles of quartz is said to prepare the way for invasion by pneumococci. The comparative freedom of New Zealand miners from pulmonary disease is attributed to the more frequent use of water-spraying. To prevent pneumokoniosis, abolition of dry methods of mining is recommended. By means of atomizers not only is dry dust laid, but by the air of the mine being kept cool and refreshing labour is less exhausting.

Western Australia.

[*FROM OUR SPECIAL CORRESPONDENT.*]

LUNACY IN 1909.

THE annual report for the year 1909 of Dr. S. H. R. Montgomery, Inspector-General of the Insane for Western Australia, shows that on December 31st, 1908, there were 707 certified insane in this State, and on December 31st, 1909, 748, giving an increase for the year of 77, which is the same as that for the previous year. The ratio of the insane to the general population at the end of 1909 was 2.8 per 1,000, or 1 in 354. The ratio to population has increased steadily from the 1 in 598 of the year 1902 to the present figure. Western Australia has still the lowest ratio of insanity in Australasia, except South Australia (1 in 395 in the year 1909) though Dr. Montgomery anticipates a steady increase to the average proportions as the population grows older. As pointed out in previous reports, Dr. Montgomery attributes Western Australia's comparative freedom from insanity to the sudden influx of mostly young and healthy adults at the time of the gold boom. At the end of 1909 the certified insane were distributed as follows: 730 were in the Government hospital for the insane at Claremont, 49 in the Whitby Hospital for the Insane, 2 were in the North Perth Private Hospital, and 3 were out on trial.

Admissions.

During the year 225 were admitted to the Government hospital, of whom 210 were first admissions. The proportion of admissions to population was 1 to 1,227 or 8.11 per 10,000, which is considerably larger than that of 1908 or of any previous year. The total admissions were classified according to the forms of mental disorder into: Mania of all kinds, 56; melancholia of all kinds, 29; dementia, 24; delusional insanity, 54; epileptic insanity, 7; acute and subacute delirious insanity, 15; general paralysis, 18; less common forms, 11; and congenital defect, 8. As to causation, alcohol was assigned in 26 or 11.1 per cent., and venereal disease in 33; the climacteric in 7; lactation in 2; various nervous diseases in 20; senility and arterial sclerosis in 32; bodily trauma in 3; and mental stress in 14. An insane heredity was ascertained in 28, and in 34 no cause could be assigned.

No table is furnished showing the nationalities of the admissions, but from a table of the places of birth of the 782 patients in the hospitals for the insane on the last day of the year 1909 we see that 120 were natives of Victoria, 108 of Western Australia, and 100 of other parts of Australasia, including 10 aborigines; 162 were natives of England and Wales, 107 of Ireland,

and only 20 of Scotland; 23 of Italy, 17 of Germany, and the remainder were natives of other parts of Europe and of Asia, Africa, and America.

Discharges and Deaths.

During the year 61 were discharged as recovered, giving a recovery-rate, calculated on the admissions, of 27.11 per cent; also 13 as relieved, 2 as not improved, and 2 as not insane. During the year 67 died, giving a death-rate on the average numbers resident of 8.89 per cent. The average recovery-rates and death-rates for the years 1902-9 inclusive were 34.36 and 8.83 respectively.

The deaths were due in 21 to cerebro-spinal diseases, including 14 from general paralysis; in 7 to diseases of the heart and blood vessels; in 3 to congestion of the lungs; in 4 to diseases of the digestive and genito-urinary systems, and in the remainder to general diseases, including 4 from tuberculosis, 13 from pneumonia, and 12 from senile decay. All deaths were from natural causes.

Cost.

The average weekly cost per patient, after deducting revenue, was 12s. 8d., or without deducting revenue 14s. 7d.

Correspondence.

THE HONOUR OF THE MEDICAL PROFESSION.

SIR,—As a member of the legal profession, who numbers amongst his friends several members of the medical profession, I have taken more than a passing interest in the subject under discussion.

I have read the letter of Mr. Lewis Morgan which appeared in your issue of April 1st. I do not think Mr. Morgan wishes practically to abolish the present system of trial by jury, but that would be the logical effect of his suggestions. At present, if we admit that in a case where a technical point of surgery is at issue it is desirable to appoint a jury of medical men to decide that point, where shall we end? The appointment of such a jury would be the rule, and a jury as now composed would be the exception. In any case that involved a purely technical point of whatsoever kind, to be consistent we should have to ask for a jury of men specially qualified to deal with that particular technical point. No one can say that the ordinary jury is more competent to decide a practical point of engineering or architecture than one of surgery.

I assume from Mr. Morgan's letter that he is in favour of the appointment of a jury of medical men in appropriate cases. He says, "Men who by their education, training, and experience are rendered capable of forming just and unbiassed estimates." Do not let it be thought that I wish to make any reflection upon an honourable body of men, but can such a jury be unbiassed?

I do not know that doctors differ so very much from ordinary men that they are able to detach themselves from the natural feelings of human beings. I do not suggest that there would be any wilful leaning in any particular direction, but when the reputation of a fellow medical man is at stake it would be remarkable if there were not the natural feeling of sympathy for him which would probably induce an unconscious bias in his favour, possibly by reflex action. In any case it would be unfair to the other side to have a jury composed only of medical men. A jury consisting of six medical men and six laymen should certainly satisfy the most exacting.

Happily the cases where the doctor is the defendant in an action for negligence are so rare that there seems to be no necessity for departing from the practice now obtaining. The system at present in use has its advantages and disadvantages, but, whatever they may be, they affect both parties in the action equally.

Mr. Morgan must not forget that under the fifty-sixth section of the Judicature Act, 1873, the High Court or the Court of Appeal may, when it may think it expedient, call in the aid of one or more assessors specially qualified and try and hear the matter in question wholly or partially with the assistance of such assessors.

That Act is now thirty-eight years old, but, as a matter of fact, I believe the powers of the section referred to have not been exercised, except in Admiralty cases.—I am, etc.,

Bridgend, April 4th. C. J. H. KAPPEL.

"THE EYE IN SPORT."

SIR,—I have noticed with interest, not untinged with amusement, that a slight article written by myself about four or five years ago appears to have, after this lapse of time, occasioned a certain amount of interest, as shown by various publications on the subject, foremost among which is Mr. Robert Doyne's lecture (JOURNAL, December 24th, 1910, p. 1960). I cite this lecture because the author of it has based a great deal of this said lecture on observations and mild theories to which I gave birth in an original contribution to *Fry's Magazine*, and was, if I remember right, entitled "The Eye in Sport."

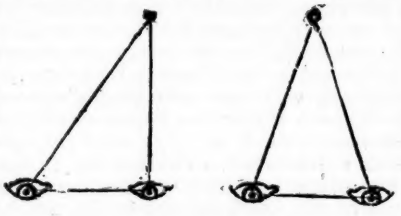
I cannot here enter into a discussion on Mr. Doyne's criticisms of my article, which was written in a popular manner for a layman's magazine, but the outstanding feature of the article was that it was popular and not scientific in character, and it is for that reason not quite as able to bear the brunt of hard scientific criticism as it might have been if I had written it, which I am and was quite prepared to do, for the scientific and not the general public.

I have read Mr. Doyne's lecture, and, in spite of consideration, I am still in doubt as to whether he realized my poor little points. It was really because I hardly thought it worthy of extended publication that the article was only reprinted once in the *Journal of the Royal Army Medical Corps* for June, 1908.

As, however, I am thoroughly in sympathy with Mr. Charles F. Green and other practical men in their treatment of the subject, I should just like to make plain to any one who should chance to be interested in the subject what my article was really meant to convey. The fundamental principle of it was concisely expressed in a phrase which was repeatedly used in the article, the "master-eye vertical plane," a plane which, I contended, humanity habitually made use of because it happened to possess two sight organs acting, at any rate for the reception of light rays, like a couple of small cameras situated with the centre of their lenses about a couple of inches apart in the horizontal plane just below the frontal bones.

I then set forth the theory, supported, perhaps, by a few observations, that mankind had found it most expedient when "aiming" (as in throwing a stone or spear) to align the hand in the vertical plane of one eye, and one only, so that, if the projected missile remain in this plane and its relation in the horizontal plane be correct, it will hit the object thrown at, extrinsic causes, such as wind, etc., being ignored. I need not dilate on the fact that I am induced to think that the vertical action of gravity has been the determining cause of this expedient of man.

I then went on to apply this principle to many of our sports and pastimes where aiming is involved, and discussed its relation in these—I doubt not, somewhat inadequately. Still it was a popular article, in which it is possibly justifiable to lead the reader on with not too strict accuracies in order that the underlying theories of the contention may be made clear. Following this master-eye vertical plane business out, I in the course of the article put forward the following assertion—that for practical purposes the eyes, when concentrated on an object as they are in aiming, may be represented diagrammatically as points at the bases of a right angle triangle,



and not at the base of an isosceles triangle as usually represented.

The base line being a line joining up the centre point (in every sense) of each lens.

Now how far I was justified in making this assumption I am still in grave doubt, but there it was to my mind the most questionable point in the paper, but as far as I know has entirely escaped criticism. I am, and was at the time I wrote, more or less familiar with the elementary physiology of muscle and nerve, and such terms as muscle-sense, reflex action, subconscious brain judgement were familiar to me, and I hope, partially at least, understood.

I can now, I think, by a simple expedient, make clearer what I was talking about, what trying to throw light on; and will do so in such a way that the influence of the physiological functions of the extrinsic and intrinsic muscles and nerves of the eye may be excluded, or shall we say, taken for granted, and allow the eyes and eyes alone be the subject of our inquiry. It will explain, it may be, why in the original article "subconscious brain judgement, etc.," was at times sedulously ignored.

Let us suppose for my purposes that the eyes of man, instead of being placed 2 inches apart in the horizontal plane be situated in the frontal bone the same distance apart in the vertical plane without a ridge of bone such as the bridge of the nose between them. I trust this is not too fantastic an effort of the imagination. These optical organs, the eyes, would then in the actual and imaginary positions have the same faculties of convergence and divergence, etc.; the whole mechanism of conveyance of light impressions to the brain, judgement, and the dozen and one things one can give physiological names to would be the same. My article was simply a modest endeavour to offer some explanation for the phenomena arising from the main instruments of sight for man, being, as I said, practically two little cameras with their centres about 2½ in. apart in the horizontal plane, with, as I mentioned later, a ridge of bone between them—the nose—which at times, from the relative positions of the gazer and the object, cuts off the light rays from one eye and not the other.

If the facts and functions at present known with regard to the sight be applied to a pair of eyes in the imagined position, then I think many of the essentials and difficulties which govern aiming will be rendered more apparent—certainly as I treated them in the original article. To enter into them myself would be laborious for me and tedious for the reader.

On the actual objective position of the eyes was based my explanation—or shall I say suggestion?—that the phenomena of the "master eye," so called, rested. I did not, in the original article, put a supposition case of two eyes in the vertical plane with an appended explanation, as I did not anticipate that what I wrote would have been so misread. I have, I must confess, been disappointed—doubtless due to my want of clearness—that the padding of the article was mistaken for the gist; as to whether my explanations were all or in part fallacious, I am, I trust, in what is called the scientific spirit, merely interested.

In so many words, it is the relative position of the two eyes and the attendant effects, not the power of sight and all sorts of other things, that many people—gun-makers, others and I—consider to be a very important, perhaps the important feature, to be legislated for in helping people to aim.

The original article can, I believe, be obtained from the offices of *Fry's Magazine*, but if any one be interested in the subject, I am sure my brother Mr. C. B. Fry, at whose instigation the article was written, and who has a complete grasp of the subject, would be only glad to throw light upon the matter.

Being somewhat far removed at present from the centres of civilization, it is tedious for me to indulge in explanations on the subject; but one is loth to be, though inadvertently, consistently misinterpreted.—I am, etc.,

WALTER B. FRY,
Captain, R.A.M.C.

Wellcome Research Laboratories, Gordon College, Khartoum, Feb. 16th.

POST-ANAESTHETIC ACID INTOXICATION.

SIR,—I was much interested in Mr. Gilbert Brown's article in the JOURNAL of February 25th, especially with regard to his practice of a routine exhibition of glucose to children before operation as a prophylactic against acid intoxication—a practice which seems to have much to commend it. Death, occurring apparently as a result of exhaustion after a prolonged or severe operation, is probably often due to a very large extent to the effects of the anaesthetic, but to be able to assign the cause of death directly to the anaesthetic, as in Mr. Gilbert Brown's cases, is, I imagine, decidedly rare. When this does occur a good prognosis has usually been given, and the result is tragic.

Last December, I was unfortunate enough to have such a case myself. I performed a radical operation for hernia on a boy 16 months old. Circumcision was done at the same time. Chloroform was given, the duration of anaesthesia being forty minutes. All appeared to go well for twelve hours, when the child had a convulsion, vomited "coffee ground" fluid, and became unconscious, remaining so for twenty-four hours, when death occurred. Stomach lavage, intravenous infusion (into external jugular vein), and administration of sodium bicarbonate by the rectum were tried without effect. I had not then read the excellent article by Wallace and Gillespie (*Practitioner*, February, 1910), or I should certainly have given glucose a trial. Acetone was found in the urine, and at the autopsy the liver was found to be pale, and showed microscopically marked fatty changes. The urine was not tested for acetone before the operation. I should be interested to know how frequently the urine of apparently healthy children contains an appreciable amount of acetone. In this case there was no obvious indication in the general condition of the child to suggest that chloroform would have had such a disastrous effect on his metabolism.—I am, etc.,

A. J. BLAXLAND, M.S.Lond., F.R.C.S.Eng.

Norwich.

ACUTE EMERGENCIES OF ABDOMINAL DISEASE.

SIR,—While fully acknowledging the truth of Dr. Hamilton's contention that cases of appendicitis in children may recover without operation, I should like to know on what signs and symptoms he relies when he decides to hold his hand, and advises against immediate surgical interference. Personally, I know of none that would make me feel justified in adopting such a course, for I have seen more than one case, in which operation was postponed because all the symptoms were favourable, develop signs of gangrene or of general peritonitis with startling rapidity. It is just because it seems to me impossible to foresee what the cause of any case of appendicitis in a child will be that I welcome Mr. Moynihan's authoritative pronouncement in favour of immediate operation in all cases.—I am, etc.,

London, W., April 8th. R. A. CHISHOLM.

AMBIDEXTERITY AND THE EDUCATION OF THE FEEBLE-MINDED.

SIR,—Dr. Hinshelwood's two interesting cases of hereditary congenital word-blindness (BRITISH MEDICAL JOURNAL, March 18th, 1911) exemplify the difficulty such patients experience in learning to read. The mental obtuseness implies probably some congenital defect in or about the left angular gyrus. In a previous paper (BRITISH MEDICAL JOURNAL, November 2nd, 1907) the same writer, after detailing notes of four congenital cases of word blindness in a family, draws attention to the fact that we possess two angular gyri, and in the event of incapacity of the left gyrus—the one usually at work—the right gyrus, by the "steady application" of the little student, may possibly be induced to functionize and take the place of the defective left gyrus. As far as I understand his system, Dr. Hinshelwood wishes to bring about this transference of function by steady plodding work with books. I believe that better results would eventually be attained in all such cases of backwardness in children if books were entirely set aside for a time and the children were meanwhile taught to use their left hands and arms in the many mechanical exercises the teachers now delegate to their right limbs. When a child became ambidextrous, then and not till then it might be taught to read afresh. The practical training of the right hemisphere in a backward child can at all events do no harm, and in some cases it might be productive of much future advantage to the child.—I am, etc.,

Hove, March 21st. W. AINSLIE HOLLIS.

DYSPEPSIA AND ITS CLASSIFICATIONS.

Sir,—The lecture of Dr. Guthrie Rankin in the Journal of March 25th, p. 665, again raises the question of the classifications of dyspepsia, and advises the use of Professor Robins's classification. He says "it has the superlative merit of simplicity." Undoubtedly simplicity is a merit, but may it not be so simple as to tell us nothing? "*Sthenic*" and "*asthenic*" were terms in daily use in the Early Victorian era, but the advance of bacteriology has put these words into the shade. According to Dr. Rankin, the former means—in connexion with indigestion—Mayor; the latter mill-worker. The third class he calls *fermentative*.

This division does not cover the ground. Dr. Robert Hutchison (British Medical Journal. April 11th, 1908) suggests a very much better classification. His main divisions are three, but his subdivisions are six:

1. Secretory	Excess = Hyperchlorhydria. Defect = Hypochlorhydria.
2. Motor	Excess = Pyloric spasm. Defect = Atony, and motor insufficiency.
3. Sensory	Excess = Hyperaesthesia. Defect = ? Anorexia.

This classification has the advantage of conveying a theory which is probably correct. The old division into acid dyspepsia, atonic dyspepsia, nervous dyspepsia—or, to use a more fashionable word, neurasthenic—is simple and conveys something of a theory, and suggests appropriate treatment. But this classification could be improved on. The first division is good enough, the second requires to be explained, as does also the nervous, and a case like the following might be placed in the atonic or nervous division:

A patient with a good digestion, after a hard day's work or the worry of business has not much appetite for his evening meal, and takes a bland meal—say of bread and milk. The result of this is pain and discomfort. But put the same patient having the same feelings before a good city dinner, let him partake of it freely and he feels no ill effect afterwards. Is this a case of atonic dyspepsia or is it nervous? I think it is *mental*. The mouth waters, so does the stomach—in other words, throws out an abundance of gastric juice, which will dispose of any amount of well-cooked and savoury food.

Or take another case, that of a young woman in business. (I have such a case at the present moment.) She suffers great pain two or three hours after food, be the meal light or heavy. It looked like atonic dyspepsia, but acid and nux vomica increased the pain, bismuth and hydrocyanic acid takes it away. This case would come under the sensory group; there is nothing asthenic about it. Yet another case now under treatment—an old lady who is suffering from paralysis agitans and glycosuria. Her stomach is peculiarly susceptible to most drugs, and several simple articles of diet cause nausea and sometimes vomiting. She suffers from constipation. Almost the only medicine on which she can get along is an effervescing bismuth and hydrocyanic mixture. But things she fancies she takes without harm, such as ham or a meat pie. On a supper of this she sleeps soundly and wakes up in the morning without any symptoms of indigestion. It is difficult to classify such cases, but, if anywhere, it would be under the mental or sensory.

The division called "fermentative"—that is, cases in which flatulence is the predominant symptom—would be better called "intestinal" dyspepsia, as the colon is the centre of the trouble. This would cover toxaemia, as well as the less toxic cases of fermentation from decomposing articles of food. Under this heading would come another class of cases: Air swallowers. Recently I had an interesting case of this kind of flatulence. The gentleman suffered many things for two years, and was on the point of resigning a lucrative position in India because of the evil-smelling flatus. It was only by accidentally noticing that he swallowed air that the mystery was solved and relief given.

I fear we have not greatly improved in knowledge either in the diagnosis or in the treatment of indigestion since the days of Dr. Beaumont and Alexis St. Martin, the Canadian soldier, though recently, owing to the experiments of Dr. Charles Bolton and other workers in connexion with gastric and duodenal ulcers, many sidelights have been thrown on functional indigestion, and cases that were formerly regarded as functional are now recognized as serious organic disease.—I am, etc.,

London, N.W., March 27th. J. Dewar.

EXTRACTION OF CATARACT IN THE CAPSULE.

We have received a communication from Captain A. E. J. Lister, I.M.S., regarding a letter from Major Fink, I.M.S. (retired), published in the Journal of December last, criticizing Colonel Smith's method of extracting cataracts in their capsule. Captain Lister takes up the cudgels on behalf of Colonel Smith, but his letter is altogether too long for us to publish in full.

He considers the idea of sending cases to be operated upon by the two methods before a tribunal as suggested by Major Fink is impracticable, and that it would not be fair either to the patient or the surgeon, who could not possibly operate at his best under such conditions; and supposing 100 cases were taken on each side, as suggested, it would be far too few to compare with the 24,000 which have formed the experience of Colonel Smith, who by his skill and reputation has transformed the little place of Jullundur into a veritable Mecca for the blind of that part of India.

He points out that the real cause of the trouble is the fact that Colonel Smith's cases are really too good to be credited by the majority of surgeons, and this spirit of disbelief leads some European surgeons to discredit the wonderful results which he claims, but which are plainly visible to anyone who will take the trouble to go and see the operations performed. Many surgeons in India have operated upon a large number of cases by Smith's method and have found it quite satisfactory.

It has been stated over and over again that there must be something specially tolerant in the eyes of the natives of India to stand the removal of the lens in its capsule. To show that this idea is fallacious, Captain Lister refers to a paper in the *Journal of the American Medical Association* for 1909, in which Dr. Greene, of Dayton, Ohio, publishes a series of 68 cases in which he extracted cataracts in the capsule, side by side with the same number in which the ordinary operation was performed. The results were better in the former than in the latter, in spite of the fact that he had not at that time been to Jullundur, which place he visited later; 68 is a large number to be done in this way by anyone out of India, but one must remember that Colonel Smith has operated upon a greater number of cases in a single day!

Colonel Smith does not consider the intracapsular method the operation of election for the ordinary operator; he claims that it is the ideal way of dealing with cataracts, and it has moreover the great advantage that it is equally applicable for immature cataracts, and thus the long period of waiting until the cataract becomes ripe is done away with.

The question as to the importance of loss of vitreous is dealt with at large by Captain Lister, both in his letter and also in the appendix to Colonel Smith's book, which was reviewed in our issue of April 1st, to which reference might be made. All those who have seen Smith's results are quite ready to agree with his dictum that "provided the eye recovers from the result of the operation the loss of vitreous has no bad results," and of 98 cases in which this accident happened, Captain Lister found the average vision was $\frac{6}{9}$, and in some was as good as $\frac{6}{6}$.

Although Smith's results are so astonishing, yet after a year's work with him, and with his own experience of 700 cases, Captain Lister is convinced that Smith's claims are by no means exaggerated, and this is now vouched for by a sufficient number of people who have visited and studied in Jullundur. "The time has now arrived when the medical profession should recognize this and give full credit for the magnificent work he has done in the face of universal opposition and discouragement." "The number of well-known ophthalmologists who have thought it worth while to come from America and the colonies to study under Smith speaks for itself, and shows the attitude of mind which is in striking contrast to that of European ophthalmologists with regard to the subject." "To my mind it is a more conclusive proof of the need for, and the

value of, the operation than could be adduced by any tribunal appointed by Major Fink or any one else."

*** We have endeavoured to give an impartial *précis* of Captain Lister's letter. The only criticism we would venture is to call attention to the point made by Colonel Herbert, I.M.S (ret.), in the *Ophthalmoscope* in 1909. He pointed out the great difficulty which existed in getting patients in whom the results were bad to come up for re-examination, and suggested that it was only possible to trace and see again those in whom the results were good. So far as we know, this criticism has not hitherto been met.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

THE following candidates have been approved in all subjects of the examinations indicated:

FIRST M.B., CH.B.—F. A. Anderson, T. Bahadur, M. Barseghian, I. Block, F. J. Cahir, J. E. Chow, J. C. B. Crozier, M. W. Danzig, H. A. Hewat, Jean E. Larché, G. Lilico, A. J. E. Ging Lim, P. M. Little, Helen M'Dougall, R. J. S. M'Dougall, R. J. S. M'Dowall, M. M'Kerrow, A. Mariy, A. P. Meiring, M. F. Meiring, E. S. Mellor, R. W. H. Miller, Isabel Mitchell (B.Sc.), J. S. Munro, R. N. Phease, W. B. Postlethwaite, A. J. Desmond Rowan, H. P. Rudolf, A. H. Shaik, B.A., A. H. Shennan, *J. M. Smith, R. B. Stewart, C. W. Stump, A. J. Taylor, *H. D. Wright.

SECOND M.B., CH.B.—E. W. Adcock, S. Arnott, E. G. von B. Bergh, J. V. Buchanan, A. Cameron, W. S. H. Campbell, J. W. Cannon, J. B. Cunningham, K. D. Falconer, A. C. Giles, D. Gilmour, D. A. R. Haddon, Julia V. Henslow, J. H. Hood, J. H. G. Hunter, J. L. C. Lagois, J. I. Lawson, J. M'Caig, Margaret N. MacCallum, *W. Mackenzie, Celia M. C. MacNeil, G. MacNeill, Jean Gabriel Marie, S. L. Mitra, S. R. Moll, R. M. Muir, W. H. Pallett, D. Pottinger, C. D. Rogers, C. Sand, A. F. Sinclair, J. Sircar, B.Sc., J. H. Smith, S. W. H. Stuart, G. T. van der Vijer, J. H. D. Watson, W. G. Weston, E. L. White, A. Wotherspoon, G. D. Yates.

THIRD M.B., CH.B.—H. F. W. Adams, J. W. E. Adkins, W. A. Alexander, T. M. Anderson, J. A. Andrews, S. H. Arthur, A. J. Ballantine, B.A., P. Baillie, Ed. B. Barton, F. J. H. Begg, R. C. Begg, M.A., B.Sc., J. H. Boag, G. V. Bogle, B.A., J. C. Booth, J. W. Bruce, A. D. Campbell, S. B. B. Campbell, W. J. Candlish, *J. F. Chalmers, H. T. Chiang, A. Cohen O. Cook, D. S. Cooper, A. F. Cowan, Lucy D. Cripps, J. H. Cuthbert, A. M. Davidson, F. C. Davidson, J. P. Davidson, A. E. Delgado, Janet S. Doak, G. A. C. Douglas, F. B. Dreyer, H. Evans, R. Fawcitt, A. K. Forbes, J. Geoghegan, J. Gifford, B.A., J. G. Gill, H. Gilliland, W. L. Glegg, R. A. Greenwood, J. M. C. Gunn, M.A., J. F. C. Haslam, R. Hay, W. J. G. Henderson, T. H. Horrax, H. D. M. Imrie, T. W. Jackson, I. W. Jones, K. L. Kapur, W. N. W. Kennedy, S. G. Kriegler, Janet S. Laird, J. H. Lamb, Christine Larsen, M. B. Lawrie, W. E. Lewis, D. P. Lindsay, *W. S. Lindsay, B.A., G. J. Linklater, Isabella M. Little, M. R. Macaulay, P. M'Cowan, *W. Macdonald, A. M. MacKay, M. R. MacKay, F. W. Mackenzie, J. C. M'Kerrow, W. F. M'Lean, F. de S. M'Menamin, *G. G. Marshall, A. W. Mather, J. Maxwell, W. Mercer, R. W. Miller, J. S. Monro, J. G. O. Moses, B. P. B. Naidu, G. F. B. Page, H. S. Palmer, C. R. Patton, H. F. Penman, E. D. Pullon, B.Sc., G. C. Ramsay, R. K. Robertson, M.A., A. Romanes, M.A., J. N. M. Ross, *A. Rutherford, E. R. Ryner, J. M. D. Scott, M.A., E. Sharpe, W. M. W. Shepherd, *A. W. S. Sichel, B.A., J. T. Smeall, D. M. Smith, *S. A. Smith, J. E. Snodgrass, W. R. Stewart, R. Thomson, Ruby Thomson, C. V. Thornton, R. Thorp, W. G. Thwaytes, C. J. Tisdall, *A. T. Todd, J. S. du Toit, J. S. Tomb, G. D. E. Tullis, G. Walker, Mary B. Walker, R. W. W. Walsh, B. Weinbren, A. R. Wightman, A. Wright, M. B. Yin, H. T. Young. Old Regulations: C. M. Austin, E. O. Beckley, J. P. Blockley, J. R. Bullman, G. Harrison, F. G. Power, T. W. Smart.

* Passed with distinction.

UNIVERSITY OF GLASGOW.

THE following candidates have been approved in the subjects indicated:

FIRST M.B., CH.B. (B., Botany; Z., Zoology; P., Physics; C., Chemistry).—*I. Abdurahman (B., Z., P., C.), R. Aitken (Z., C.), J. M. Anderson (Z.), J. Anderson (B.), A. D. Blakely (B.), *J. Buchanan (B., Z.), J. Cameron (P.), J. M'Campbell (Z., C.), W. Campbell (Z., C.), M. W. Cantor (Z., C.), A. M. Clark (Z., C.), W. Combe (Z., C.), J. Connal (Z., P.), W. G. Cook (Z., C.), *W. Cunningham (Z., C.) *G. del Pino (Z., C.), J. J. de Waal (Z.), R. S. Dickie (C.), *A. H. Donaldson (Z., C.), *H. T. Findlay (Z., C.), H. Forbes (Z., C.), *A. D. Fraser, M.A. (Z.), G. J. Fraser (B., Z., P.), I. M. Frazer (B., P.), *R. Frew, B.Sc. (Z.), T. R. Fulton (B., C.), W. W. Galbraith (B., P.), *D. G. Gardiner (Z., C.), L. W. Gemmell (B.), J. A. F. Gibson (P.), J. Gilchrist (B., Z., P., C.), N. W. Gilchrist (B., Z., C.), *C. C. B. Gilmour (Z., C.), J. Glaister (Z., C.), W. Gordon (Z., C.), *R. T. Grant (Z., C.), D. C. Hanson (P.), A. C. Hepburn (C.), T. J. Honeyman (Z., C.), T. P. Hutchison (B., C.), *G. Kirkhope (Z., C.), W. F. Kivlichan, M.A. (B., P.), *J. C. Knox (Z., P.), R. Kyle (C.), *R. M. Lang (Z., C.), H. B. Lawrie (Z.), *A. T. Logan (Z., C.), H. L. M'Cormick (C.), *J. M'Culloch (Z., P.), D. F. Macdonald (B., P.), R. W. MacDonald (C.), D. J. Macdougall (P.), D. K. MacDougall (Z., C.), *D. M'Farlane (B., Z., P., C.), *J. M. Macfie (Z., C.), J. P. M'Grechin (B., P.), A. F. M'Intosh (Z., C.), J. M. Mackay (B., P.), D. Mackie (C.), J. A. MacLean (Z., P.), M. B. Macleod (Z., C.), D. M. Macmillan (C.), D. M'Neill (C.), E. J. Macphail (B., Z., P., C.), *W. L. Marshall (Z., C.), W. Martin (C.), J. C. M'I. Matheson (Z., C.), J. S. Meighan (Z.), T. D. Miller (Z., C.), *J. D. Milligan (Z., C.), P. O. Moffat (B., Z., P.), P. J. Moir (P.), N. Morris (Z., C.), H. A. Munro (B., Z., C.), J. H. Murray (C.), J. A. O'Connor (Z.), *A. W. Panton (Z., C.), J. R. Pate (C.), J. A. Paterson (C.), W. J. Poole (Z., C.), W. B. Primrose (Z., P.), J. Richardson (Z., C.), K. M'A. Ross (C.), W. J. Scade (Z., C.), S. C. Shanks (Z., C.), J. T. Smith, M.A. (Z.), A. Stenhouse (C.), D. S. Stevenson (C.), C. H. Stewart (B.), R. S. Strachan (Z., C.), R. Taylor (Z., C.), C. R. T. Thompson (Z.), D. F. S. Thomson (Z., P.), R. M. Thomson (C.), R. T. Todd (Z., C.), *A. J. van der Spuy (Z., C.), *W. S. Wallace (C.), R. R. Waters (Z., C.), J. D. Watson (C.), W. J. C. Watt (C.), J. G. Wilson (C.), *R. J. Wilson (Z., C.), T. M'S. Wilson (P., C.), G. Young (B., P.), *T. Young (B., Z., P., C.). Women: *A. E. Cooke (B., Z.), J. B. Davidson (C.), L. F. Goetz (Z., C.), D. M'Cubbin (Z., C.), M. J. Maclachlan (Z., C.), E. C. M'Vie (Z.), G. Montgomery (B., P.), S. Naismith (Z.), M. A. Noble (Z., C.), I. M. Sinclair (B., P.), M. A. H. Stewart (C.), I. S. Thomson (Z.), M. F. Wood, M.A. (B., P.).

SECOND M.B., CH.B. (A., Anatomy; P., Physiology; M., Materia Medica and Therapeutics).—*D. K. Adams, M.A. (A., P.), J. Angus (P.), H. S. Banks, M.A. (A., P.) R. A. Barlow, B.Sc. (M.), A. Blashky (M.), *J. S. K. Boyd (A., P.), W. A. Brechin (A., P., M.), D. P. Brown (A., P., M.), R. A. Brown (A.), J. L. Browalie (P., M.), E. T. Burke (M.), J. W. Burton (P., M.), J. A. Chrystie (M.), B. Cohen (A., P.), W. MacC. Conley, M.A. (A., P., M.), J. Connell (A., P., M.), G. G. Cooper (A., P.), N. Crichlow (A., P., M.), L. Crombie (A., M.), W. T. Currie (M.), G. Dalziel (M.), W. C. Davidson (M.), G. D. de Kock (M.), A. Dick (A.), W. C. Fleischmann (A.), J. B. Fotheringham (M.), W. Fotheringham (A., P.), J. Fraser (P., M.), W. Fraser (A.), G. Gordon (A.), I. Grant (A., M.), J. L. Gregory (A., P., M.), J. M'F. Grier, M.A. (A.), P. Henderson (M.), *W. J. Henry (A., P., M.), G. Hislop (A., P., M.), W. Hornsby (A., P., M.), *W. M. Howells (A., P., M.), D. M. Hunter (A., P., M.), J. F. Hutton, M.A. (P., M.), T. P. Inglis (P.), W. J. B. Lavery (M.), A. Lindsay (M.), G. S. Livingston (A., P.), C. Lundie (M.), D. M'Alpine (A., P., M.), J. L. M'Bean (A., P., M.), P. A. M'Callum (A., P., M.), J. A. M'Connachie (A., P.), J. W. M'Donald (A.), J. M'Ghie (P.), J. MacInnes (A., P., M.), D. Mackinnon (A., P., M.), J. R. C. Mackintosh (A., P.), K. N. MacLean (A., P.), *R. M'Lean (A., P., M.), N. Macleod (M.), R. M. M'Minn (A., P.), E. S. Macphee (P.), *W. E. Maitland (A., P., M.), O. H. Mavor (A.), T. S. Meighan (P.), K. D. Murchison (P.), M. Murphy (A.), *T. M. Newton (A., P., M.), R. Parker (A., P.), *J. Purdie (P.), A. M. Ramsay (A., P., M.), R. Ray (M.), D. R. E. Roberts (A., P.), E. Robertson (A., P., M.), F. M. Robertson (A., P., M.), G. W. Ronaldson (M.), A. W. Russell (M.), N. I. Sinclair (P., M.), D. Smith (A., P., M.), *W. R. Snodgrass, M.A. (P.), R. Stewart (A., P.), W. P. A. Stewart (A.), I. D. Suttie (A., P., M.), G. Taylor, M.A. (M.), E. G. Y. Thom, M.A. (M.), R. B. Wallace (A., P., M.), H. C. Watson (P.), J. C. Watt (A., P., M.), M. White, M.A. (M.), W. H. N. White (A., M.), F. J. Whitelaw (A.), J. Whiteside (M.), A. M. Young (A., P.). Women: *N. M. A. Allan (A., P., M.), C. S. T. Anderson (A.), J. R. Anderson (A.), M. P. Hislop (A., P.), J. K. M. Hunter (A., P.), M. A. Kirk (A., M.), S. A. J. Rankine (A., P.), M. Thompson (A., P.), J. A. Woods (A., P.).

THIRD M.B., CH.B. (P., Pathology; M., Medical Jurisprudence and Public Health).—W. L. Anderson (P., M.), J. G. Becker (P. M.), S. Blumenfeld (P.), A. Brown (P., M.), W. Brown (P., M.), J. S. Buchanan (P., M.), N. Cameron (P.), J. H. J. V. Coats (P., M.), G. Cochrane, M.A. (M.), R. Craig, M.A. (P.), D. A. Cush (P., M.), A. H. Davidson (P., M.), W. T. G. Davidson (P., M.), J. H. Dible (P.), J. Dickie (P., M.), *W. B. Drummond (P., M.), A. M. Dunlop (P.), J. M. Forsyth (P., M.), W. Forsyth (P., M.), J. E. Fyfe (P., M.), J. J. Gibb (P.), A. M. Gibson (P., M.), A. Glen (P., M.), L. Glushak (P.), J. A. Harper, M.A. (P., M.), A. G. Henderson (P.), A. J. Joubert (P.), *C. J. Kirk (M.), R. P. A. Kirkland (P., M.), J. F. Lang, M.A. (P., M.), F. W. K. Lawrie (P., M.), R. A. Lennie (M.), N. V. Lothian, B.Sc. (P., M.), C. Lundie (P., M.), J. R. M'Curdie (P., M.), C. A. M'Guire (P., M.), G. D. M'Lean (P., M.), M. H. M'Leod (P.), J. M. Macpherson (P., M.), J. H. Magoveny (P.), *T. Martin (P., M.), W. Montgomery (P.), A. Neilson (P.), J. B. Orr, M.A., B.Sc. (P., M.), J. C. Pyper (P., M.), D. W. Reid (P.), J. R. R. Ritchie (P.), A. L. Robertson (P.), J. H. Robertson (P., M.), J. I. Robertson (P.), A. W. Russell (P.), S. Rutherford (P., M.), F. Shearar (P., M.), J. F. M. Sloan (M.), H. C. van der Wat Smit (P.), J. A. Smith (M.), M. Sommerville (M.), R. A. Steven (M.), G. Stevenson (P., M.), J. A. Stewart (P.), R. Stewart (P., M.), W. Taylor (P., M.), J. C. T. Teggart (P., M.), C. J. van Lingen (P., M.), A. Walker (P.), T. Walmsley (P.), T. Waterhouse (P.), G. M. Whish (P., M.), E. C. White (P., M.), T. Whitelaw (M.), W. Whitelaw (P., M.), A. Wilson (P., M.), W. B. Wilson (P.), W. F. Wood (P., M.), W. P. Yates (M.). Women: J. M. Davidson, (P., M.), I. Inglis (P.), M. L. Kirkwood (P., M.), J. M. Walker (P.).

FINAL.—J. B Alexander, *J. W. Anderson, D. Arbuckle, Agnes B. Auchencloss, C. Averill, Christina Barrowman, Marie A. A. Beard, A. H. Brown, *J. T. Brown, J. Buchanan, D. Downie, R. Findlay, T. L. Fleming, T. S. Fleming, H. Forrest, T. L. Fraser, D. T. C. Frew, A. Garvie, *J. Gibson, M.A., A. S. Hannay, W. Johnstone, J. D. Mackinnon, *W. MacMurray, S. A. MacPhee, G. H. M'Robert, J. P. M'Vey, M. Manson, M.A., F. W. Martin, R. S. Miller, J. Mowat, H. L. Neil, A. Poole, A. S. Richmond, *Barbara G. Rutherfurd, J. L. Scott, *J. F. Smith, M.A., W. Sneddon, *J. Stewart, J. T. W. Stewart, T. L. G. Stewart, Barbara Sutherland, M.A., A. G. Waddell, J. D. Walker, A. G. S. Wallace, G. Wallace, J. Williamson, A. S. Wilson, G. J. Wilson, F. H. Young, M.A., J. Young.

* Passed with distinction in one or more subjects of the examination.

UNIVERSITY OF ABERDEEN.

THE following were among the degrees conferred at a meeting of the Senate on April 5th:

LL.D. (*Honoris Causa*).—A. R. Cushny, M.A., M.D.Aberd., F.R.S., Professor of Materia Medica and Pharmacology, University of London; A. Keith, M.D.Aberd., F.R.C.S., Conservator of Museum and Hunterian Professor, Royal College of Surgeons of England.

M.D.—D. Buchanan, J. MacFarlane, J. H. Moir, *R. W. A. Salmond, †D. Wood.

M.B., CH.B.—‡J. Davidson, ‡H. J. Rae, M.A., E. P. Duncan, R. M. Easton, M.A., J. Fettes, J. R. G. Garbutt, Mabel Hector, J. L. Hunter, G. Leggatt, D. Miller, J. M. Mitchell, E. H. Moore, A. Smith, W. G. Thomson, M.A., J. W. Tocher, W. M. Will.

* Honours for thesis. † Commended for thesis.
‡ Second-class honours.

On the same occasion Diplomas in Public Health were handed to Messrs. F. W. Falconer, W. I. Gerrard, R. W. Macpherson, and R. Sinclair.

UNIVERSITY OF LIVERPOOL.

The following candidates have been approved at the examination indicated:

D.T.M.—B. Blacklock, M.D., C. C. Iles, M.B., Ch.B., A. Ingram, M.D., T. Kirkwood, M.B., C.M., B. Knowles, M.B., Ch.B., G. M. B. Liddle, M.B., B.Ch., W. W. Mackarell, M.D., R. B. Murray, M.B., Ch.B., K. A. Rao, M.B., Ch.B., J. A. Sinton, M.B., B.Ch., B.A.O., B. S. Tarapurvalla, L.R.C.P. and S., L.F.P. and S., W. M. Woods, L.R.C.P. and S.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

An extraordinary Comitia was held at the College on Monday, April 10th, the President, Sir Thomas Barlow, in the chair.

Presidential Address.

The President gave an address on the chief events that had occurred during the past collegiate year. He gave sympathetic biographical notices of the five Fellows—Drs. Cheadle, Anderson, Ringer, Payne, and J. E. Pollock—who had died during the same period.

On the motion of the Treasurer, Sir Dyce Duckworth, a vote of thanks was passed to the President for his address. A unanimous request was also passed that he would allow it to be printed and circulated, to which he gave his consent.

Sir Thomas Barlow then vacated the chair.

Election of President.

Voting then took place for the election of President for the ensuing year. Out of 93 votes cast, 90 were in favour of Sir Thomas Barlow, who was accordingly re-elected. Having assumed the insignia of office, he gave his faith to the College, and briefly thanked the Fellows for the renewed expression of their confidence.

Communication.

A communication was received from the Secretaries of the National Conference on the Prevention of Destitution, to be held in London at Whitsuntide, requesting the College to appoint delegates to attend the conference. It was resolved to point out in reply that so many Fellows and Members were officially engaged in the various sections that a formal nomination of delegates was superfluous, and to express the hope that the conference would be successful.

Seats to View the Coronation Procession.

A small committee was appointed to make arrangements for providing seats for viewing the procession during the Coronation festivities.

Reports.

The following reports were received:

I. From the Committee of Management, recommending:

(*a*) That a report, dated October 4th, 1910, of a committee appointed by the Royal College of Physicians to consider and report upon the teaching, regulations, and examinations in pathology for the Conjoint Diploma be adopted with one modification—that is, that eighteen classes of practical instruction in pathological histology be required, instead of twenty-five classes, and, further, that these alterations take effect from January 1st, 1912, and do apply to all candidates who pass the examination in anatomy and physiology on or after that date.

(*b*) That the University of Bristol be added to the list of universities whose examinations are accepted under the conditions of Paragraph II, Section III, of the Regulations, in lieu of the first and second examinations of this board.

(*c*) That the Western University, London, Ontario, be no longer recognized under the conditions of Paragraph IV, Section III, of the Regulations.

These recommendations were adopted.

II. From the same, dated March 7th, 1911:

(*a*) Reporting that, having considered the information submitted by Dr. Frederick Taylor, the visitor to the examinations of the Egyptian Medical School for the year 1910, the committee found that the examinations of the school are entirely satisfactory.

(*b*) Recommending that Malvern College be added to the list of institutions recognized by the Examining Board in England for instruction in chemistry and physics.

(*c*) Reporting that having considered, in accordance with the request of the Royal Colleges, the following resolution adopted by the British Medical Association, namely:

> That it is desirable that diagnosis and treatment of diseases of the eye, including the estimation of refractive errors and retinoscopy, should be compulsory subjects in every medical curriculum, and that every student should undergo a practical examination therein.

The committee recommended as follows: That, as the diagnosis and treatment of diseases of the eye, including the estimation of refractive errors and retinoscopy, are included in the curriculum of professional study, and that questions in these subjects are asked from time to time in the examination, the committee are of opinion that it is not necessary to make any change in the present arrangements of the examination.

These resolutions were adopted.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The quarterly council meeting was held on April 6th, Mr. H. T. Butlin, President, in the chair.

Jacksonian Prize.

The prize for the year 1910 was awarded to Mr. K. Macfarlane Walker, M.B., B.C., F.R.C.S., for his essay on "Tuberculous Disease of the Urinary Bladder and Male Genital Organs."

The subject chosen for the year 1912 is the "Embryology and Treatment of Cleft Palate."

The Walker Prize.

The Walker prize of £100, awarded quinquennially to the author of the best work done, in the United Kingdom or elsewhere, upon the "Pathology and Therapeutics of Cancer," was given to Dr. E. F. Bashford, General Superintendent and Director of the Laboratory of the Imperial Cancer Research Fund, London.

In making this award attention was drawn (1) to the actual amount of the work carried out during the past five years under Dr. Bashford's direction, (2) to its systematic character, and (3) to its far-reaching extent, in that it had critically tested all the questions relating to the pathogenesis of cancer as they have arisen during this period. Many important results had also been obtained confirming or materially extending the work of other observers, especially in connexion with mouse cancer.

Cartwright Prize.

This was awarded to Mr. H. Percy Pickerill, M.B., Professor of Dentistry at Otago, New Zealand.

The subject selected for the next prize is "Oral Sepsis as a Factor in the Causation of General and Local Diseases." The prize will be awarded in 1916.

Senate of the University of London.

Sir Alfred Pearce Gould was re-elected a member of the Senate for the four years ending May, 1915.

CONJOINT BOARD IN ENGLAND.

The following candidates have been approved at the examinations indicated:

First College, Parts I and II (*Chemistry and Physics*).—†W. G. E. Allen, *J. Andrew, †G. T. Baker, †R. N. Bates, *A. A. Brown, *W. B. Buer, †P. H. Burton, †A. S. Carter, J. W. Clayton, *E. S. Cuthbert, R. G. Dani, *G. Dayal, *F. P. G. de Smidt, G. A. N. Dod, *H. M. Drake, *C. H. Fischel, *J. Fox-Russell, *L. H. Garcés, *C. C. G. Gibson, †C. Gould, *K. J. M. Graham, *J. A. Gregory, *C. G. W. Hahr, *M. St. C. Hamilton, *W. N. Harrison, A. G. Harsant, †J. A. Hart, †E. L. Hopkins, A. M. Hutchinson, †H. B. Hyde, F. B. Jago, †J. R. John, T. P. W. John, E. G. Jones, C. H. Laver, C. G. Learoyd, *A. G. Lennon-Brown, †S. D. Lodge, †W. D. McRae, *J. M. Madariaga, R. P. S. Mason, *E. C. de M. Morgan, *W. H. A. Pratt, A. Rose-Innes, †N. A. Scott, *H. H. Silly, †D. P. Thomas, †R. H. Williams, *I. Zaki.

* Passed in Part I only. † Passed in Part II only.

First College (*Elementary Biology*).—A. A. Adams, G. T. Baker, C. L. Balkwill, J. Behesnilian, H. S. Bryan, W. B. Buer, A. S. Carter, R. G. Charlesworth, S. W. Coffin, B. Crossley-Meates, C. L. Curle, A. T. Dally, R. G. Dani, A. K. Day-Lewis, C. L. Donne, G. G. Drummond, C. H. Fischel, C. C. G. Gibson, F. J. Good, A. B. Hacking, M. Hafez, C. G. W. Hahr, B. J. Hallowes, E. A. Hardy, A. G. Harsant, L. Horsley, C. H. Housden, H. R. W. Husbands, H. B. Hyde, F. B. Jago, W. Kilroe, N. S. Koch, R. D. Langdale-Kelham, C. G. Learoyd, T. W. Le Mesurier, S. J. L. Lindeman, V. E. Lloyd, S. D. Lodge, G. S. B. Long, W. U. D. Longford, G. Lynden-Bell, E. McArd, J. E. C. Maguire, R. H. Maingot, A. D. Marston, R. P. S. Mason, F. B. Matthews, E. C. de M. Morgan, J. F. M. Payne, R. W. Payne, E. A. Prichard-Evans, D. R. Reynolds, C. Y. Roberts, G. C. Robinson, A. F. Rook, A. Rose-Innes, J. Rowland, W. H. Sarra, G. R. Sharp, W. W. S. Sharpe, J. B. G. Skelton, D. M. Smith, F. P. Smith, A. Sunderland, P. W. Symons, D. P. Thomas, J. Victory, A. A. Watkinson, A. S. Westmorland, N. J. Wigram, R. H. Williams, J. Wiseman, H. E. P. Yorke, I. Zaki.

LONDON SCHOOL OF TROPICAL MEDICINE.

The following candidates were approved at the examination held at the end of the thirty-fifth session:

*H. M. Hänschell, *†G. G. Butler, *‡H. Crossle, *C. J. Wilson, *†A. J. R. O'Brien (Colonial Service), *†J. B. Alexander, *†M. B. Hay, *‡C. C. Shaw, *†G. R. H. Chell, E. J. Wyler, ‡S. Hunt, F. Standish, †A. F. Kennedy, E. E. Witt, W. H. Scott, J. Martinez, †A. J. M. Crichton.

* Passed with distinction. † Colonial Medical Service.
‡ Indian Medical Service.

SOCIETY OF APOTHECARIES OF LONDON.

The following candidates have been approved in the subjects indicated:

Primary, Part I (*Materia Medica and Pharmacy*).—R. Fowle, C. G. Jones, J. E. Kitchen, J. E. Taylor.

Primary, Part II (*Anatomy*).—H. S. C. Cooper, J. E. Kitchen, L. C. Smith. (*Physiology*) H. S. C. Hooper, L. C. Smith, A. H. Taymour, A. S. Womersley.

The third Congress of French-speaking Doctors on Physio-therapeutics will be held in Paris on April 18th, 19th, and 20th, under the presidency of Dr. Béclère, physician to the Saint Antoine Hospital, Paris.

A Society of Psychiatry and Neurology was founded at Madrid in January, 1911. It has forty-three original members. The President is Dr. Galceran Granes. The Society is said to be the first of its kind established in Spain, and the second in any Spanish-speaking country. A Psychological Society was founded at Buenos Aires in 1909.

Down Bros., Limited (London, S.E.) have been awarded the Gold Medal (highest award) for surgical instruments and aseptic hospital furniture at the United Provinces Exhibition at Allahabad, 1910.

The Services.

THE ROYAL NAVY MEDICAL SERVICE.

THE course of instruction of the newly entered acting surgeons at Haslar was brought to a close on April 4th by the distribution of the prizes by Inspector-General Thomas D. Gimlette, C.B.

The gold medal was gained by Acting Surgeon S. W. Grimwade, M.B., of St. Thomas's Hospital. The silver medal was awarded to Acting Surgeon H. E. Perkins of Guy's Hospital. The two above-named officers took the first and second places in the combined London and Haslar examinations.

Three navy regulation pocket cases—prizes for subjects in which instruction is given at Haslar—were awarded to Acting Surgeons S. W. Grimwade, M.B., Alexander Scott, M.B., and Basil Taylor, M.B.

The following list shows the places gained by the combined marks of the London and Haslar examinations:

	Marks.
Acting Surgeon S. W. Grimwade ...	3,715
Acting Surgeon H. E. Perkins	3 692
Acting Surgeon A. Scott	3 643
Acting Surgeon B. Taylor	3 479
Acting Surgeon E. C. Holtom	3,347
Acting Surgeon C. F. Willes	3,310
Acting Surgeon J. G. Danson	3,205
Acting Surgeon G. J. Carr	3,177
Acting Surgeon H. H. Ormsby	3,146
Acting Surgeon E. M. Browne	3,088
Acting Surgeon A. E. P. Cheesman ...	2,885

QUARTERS FOR GLASGOW R.A.M.C. TERRITORIAL UNITS.

ANOTHER hitch has arisen in connexion with the proposed quarters and drill hall for the five medical territorial units in Glasgow. After considerable discussion and lengthy correspondence, the Glasgow Territorial Force Association declined to proceed with buildings which were considered wholly inadequate for the requirements of the medical corps, but eventually plans were approved and a site obtained for the new quarters. The Chief Engineer of the Scottish Command has now taken up the consideration of the subject, and new plans have been suggested. The whole question is one which is likely to strike in the near future at the efficiency of the medical units and their popularity in the city. The medical units in Glasgow have hitherto been kept always at full establishment and in a very high state of efficiency, and since the institution of the Territorial Force these units have not only kept up to their full establishment with a waiting list of recruits, but are the only units in the city which have done so. Despite this, the medical corps is the only one which is not provided with head quarters and drill hall, officers' and sergeants' mess and recreation rooms, gymnasiums, etc., for the men. Drills have had to be abandoned for want of accommodation, and the officers are working under very great difficulties. The question is becoming very acute, and there is very free discussion as to whether, in all the circumstances, time and energy should be expended by officers and men with such inadequate facilities and encouragement.

Medico-Legal.

RIGHT TO OPERATE ON AN INFANT.

WHILE the question of "consent" is one which frequently troubles the operating surgeon, it becomes, if anything, more difficult when the patient is an infant in the eye of the law. If a surgeon desires to operate on a person under the age of 21, must he obtain the consent of the parents? It is easy to imagine cases in hospital or elsewhere—cases of emergency, where immediate operation may be necessary or desirable. To delay in order to obtain the parents' consent may mean the death of the patient. What, then, is the duty of the practitioner? There is no English decision on the subject, but a case recently decided in Toronto sheds a certain amount of light on it. It appeared that a young man, aged 19, was referred by a country physician to a Toronto physician for a polypus of the nose. The Toronto physician referred him to the rhinologist of the Toronto Hospital, who removed the polypus, after which he saw no more of the case, leaving the after-observation to one of his assistants. The house officer, however, who also served as senior interne in surgery, observed that the young man had a marked goitre, and advised the removal of one lobe of the thyroid. The young man seemed willing enough to have this done, although there was no evidence that he gave instructions. However, he allowed himself to be transferred to a surgical ward, and quietly submitted to the preparation by nurses, and went to the anaesthetic room without demur. Half the gland was removed, and he made a good recovery in about a week and went home. His parents then instituted a suit against the hospital; first, for operation without consent of the young man or that of his parents, and, second, for damages to the young man's health.

The case was tried in the High Court at Toronto by Falconbridge, J., who, after finding that the young man did, in fact, assent to the operation, and that no harm was done to him, said:

"The question of law as to which I desired the assistance of counsel was whether, in the case of a young man within three months of 19 years of age, well grown, it was possible that the law was that a surgeon should not venture to operate upon him without getting the consent of his parents. No such law has been found for me, and I shall not be the first judge to declare that there is such a law. Of course, if it was the case of an infant of tender years, or the case of a person manifestly of weak intellect, it might be another matter; but this young man, while manifestly not of the brightest intelligence, is apparently well enough able to take care of himself; and I hold, as far as this case is concerned, that it was no part of the duty of the hospital authorities nor of the operating surgeon to make an inquiry or obtain the leave or licence of the parent or guardian. The result is the defendants are entirely exonerated and vindicated, and the action must be dismissed with costs, if costs are asked for."

It will be noticed that this case rather "went off," because there was no damage proved to have resulted from the operation. Further, the patient was a child "in the eyes of the law," but not in the ordinary sense of the word. The general question cannot therefore be said to have been decided by this case. Indeed, one might say, as Lord Lindley once said in answer to the query, "Can a lunatic be made a bankrupt?": "This question has been open for several hundred years. Suppose we leave it open a little longer." But when it does come up in the course of time it is probable that the English courts will adopt the sound reasoning of Mr. Justice Falconbridge. Brushing aside the legal fiction that a person under 21 is an infant for all purposes, it is practically certain that the question of consent would be decided according to the age and intelligence of the child.

WORKMEN'S COMPENSATION.

Alleged Frostbite.

IN a case heard at Liverpool (March 20th) the owners of the Allan liner *Corsican* were sued for compensation by a seaman whose hands had been frostbitten at Halifax, Nova Scotia. Claimant put socks on his hands in order to handle the ice-covered ropes, but the socks slipped off, and both hands were frostbitten to such an extent that hospital treatment was necessary. The Judge said that the case came very near the border line, but he felt bound to give judgement for the respondents.

Medico-Ethical.

The advice given in this column for the assistance of members is based on medico-ethical principles generally recognized by the profession, but must not be taken as representing direct findings of the Central Ethical Committee, except when so stated.

OBLIGATIONS OF AN ASSISTANT.

AGGRIEVED.—If there was an agreement between B. and C. under which C. contracted not to practise within a certain area for a definite time after the termination of his engagement with B., and if B. waived his rights temporarily in order that C. should act as locumtenent for A. during his illness, and A. and C. have taken advantage of this to take B.'s patients, B. has ground of complaint.

MESSAGES TO BE CALLED FOR.

W.F.L.D.—The affixing of notices giving the name of a practitioner, and stating that messages can be left for him in or upon premises where he has no bona fide tenancy, is a practice which can only be approved in scattered rural districts where there are few resident medical practitioners, and the arrangement is for the public convenience.

THE Fourteenth Congress of the German Gynaecological Society will be held at Munich in June (7th to 10th) under the presidency of Professor Doederlein. The principal subject proposed for discussion is the relation of tuberculosis to the female genito-urinary organs. Reports on this question will be presented by Drs. Jung, Veit, and Kroenig.

THE third meeting of the International Congress of Infant Hygiene will be held at Berlin next September on the 11th and the two following days. The congress is under the patronage of the German Empress, and the Imperial Chancellor is honorary president. Among the excursions arranged is one to the International Exhibition of Hygiene at Dresden, one department of which will be devoted to puericulture.

Public Health
AND
POOR LAW MEDICAL SERVICES.

SALARIES OF MEDICAL OFFICERS.

The Penzance Board of Guardians at its last meeting received and adopted a recommendation from its Finance Committee made after a conference with the medical officers and Dr. Bramwell, advising that certain small increases should be made in the salaries paid to four medical officers. The increases amounted together to £45 per annum. Speaking on this question, Mr. Court (Local Government Board) said it was satisfactory that the Board had adopted the committee's recommendation of increases of salaries. The remuneration they proposed giving was distinctly lower than the fee given per case in the country generally. The Royal Commission found fault generally with the remuneration to medical men as not being enough to secure all the attention that was necessary with a conscientious man. The rough conclusions were that the medical men were underpaid, and that in many cases a medical man only did the work he was paid for. If guardians stood out too stiffly in meeting changes of circumstances, and the greater calls which were made upon medical officers than had obtained in the past, then public opinion was influenced against the guardians—certainly an undesirable thing just at present. He hoped the terms would be accepted by the medical men. It certainly was a considerable step forward. Personally, he should have been inclined to go a little further, and settle the matter at once. He thought that perhaps the doctors would recognize that the Board had made a great step forward.

RETURN CASES OF DIPHTHERIA.

Sörensen, in a paper on return cases of diphtheria,[1] states that he has never seen a fatal return case of true diphtheria, and adds that of 7,037 cases of diphtheria observed in 1898–1909, only 82, or 1.16 per cent., were return cases. The greatest number of these occurred from four to twelve days after discharge of the patients (source of infection). Of the 82 cases, 8 showed diphtheria bacilli on discharge, 73 none (1 was not examined), that is, 90 per cent. were free from bacilli. Sörensen accounts for these results by assuming that the "supposed" cases may not be the true sources of infection, and that many of the cases in which the bacilli were not discovered might still be sources of infection, as, owing to the inaccessibility of parts of the naso-pharyngeal cavity, the bacilli might have escaped detection. An examination of the figures, therefore, shows that the bacilli were present in 10 per cent., that is, 700 out of 7,037, of the discharged patients, but only 8, or 1.14 per cent., infected their families or were return cases. Sörensen concluded that the presence of the bacilli in the discharges is a very apparent source of infection, nor is their absence a guarantee against infection.

GREENOCK HOSPITAL FOR PHTHISIS.

At a meeting of the Greenock Combination Hospital Board there was submitted a report by Drs. A. Campbell Munro, Renfrewshire; W. S. Cook, Greenock; W. Stewart, Gourock; and Andrew Love, medical superintendent of the hospital, with reference to the site for the proposed phthisis hospital within the Board's grounds at Gateside. The report advised that it would be a shortsighted policy to endeavour to squeeze in accommodation for phthisis cases upon the present site, as the ground within the boundary walls was not more than sufficient to provide for the prospective requirements of the hospital, and there was no sufficient clear area within the walls on which to place a phthisis ward block with the necessary adjuncts of chalets and shelters. At the same time the medical officers asked to be authorized to inquire and report as to the practicability of obtaining a site in close proximity to the hospital upon which to erect buildings of an economical type for the isolation and treatment of cases of phthisis which could not be properly treated at home, and which constituted a source of risk to their families and to the community at large. The first part of the report only was adopted by the Board. The second part will probably receive further consideration at a future date.

RESPONSIBILITY FOR INFECTED PERSONS.

A somewhat interesting point was discussed at the annual meeting of the Convention of Royal Burghs of Scotland on April 5th, when there was submitted by a Hamilton representative a report of a committee on the allocation of cost of hospital treatment of an infected person under the Public Health Act. The question arose in a case in which a patient from a neighbouring burgh came to the burgh of A. to consult a doctor. The doctor diagnosed the case as scarlet fever, and with the consent of the medical officer of the burgh in which the patient then resided, and from which she came direct for the consultation, he sent her to the infectious diseases hospital. The two burghs referred the question of the patient's maintenance while in hospital to the Local Government Board, and the Board decided that the burgh liable was that in which the case was diagnosed, and not the burgh in which she resided when she took ill, although she was only in the burgh of A. for the short time she was under examination by the doctor. The committee was asked to inquire whether this decision was sound, and, if so, what should be done to remedy the injustice. The answer of the committee was that the decision was according to law, and that there was no hope of getting any satisfactory amendment, because a contrary decision might also be regarded as inequitable. After a good deal of discussion the Convention accepted the report, and approved of the committee's decision.

[1] *Muench. med. Woch.*, 1911, No. 13.

THE NOTIFICATION OF MEASLES.

F. W. T.—Measles has been notifiable in Aberdeen, Birkenhead, Burton-on-Trent, Coatbridge, Paisley, and Wigan, but in all these places notification of the disease has been abandoned. In Wigan there is voluntary notification of the first case in a family. In St. Helens, under the provisions of a local Act, notification is compulsory by the "person in charge of an elementary school." The receipt of notifications has been followed by advice to the persons concerned as to the measures to be carried out for the prevention of the spread of the disease, but hospital isolation has rarely been carried out. The abandonment of compulsory notification by authorities who have adopted it would seem to be evidence that it has not been effectual in preventing the spread of the disease or in reducing the mortality.

Obituary.

JAMES RORIE, M.D,

CONSULTING PHYSICIAN, DUNDEE ROYAL ASYLUM.

On April 3rd, when his life was already threatened by a painful disease, Dr. Rorie passed away painlessly by cerebral haemorrhage. He was born in Arbroath on April 4th, 1838, and after a brilliant career at Edinburgh University, where he gained a Gold Medal for the Thesis with which he graduated M.D., he was appointed Assistant Superintendent of Dundee Royal Asylum. On Dr. Wingett's death a year later Dr. Rorie was, at the early age of 22, appointed Superintendent, and continued in that office for forty-three years. He entered at once into the group of Scottish superintendents, still represented by Dr. Yellowlees and Dr. Clouston, who were at that time seriously tackling the scientific study of insanity. Dr. Rorie was a contributor to and for a time one of the editorial committee of the *Journal of Mental Science*. He was a man of considerable philosophical attainment, and his interest in the scientific study of mental disease never flagged. As Lecturer on Mental Disease in the University of St. Andrews he was to the last engaged in laboratory work and keenly alive to the modern advances of its technique.

His great work was, however, the development of the asylum which, when he started, stood on a narrowly circumscribed area within the town. In 1882 he saw his plans for its development brought to fruition by its transfer to a large estate in the country. For many years the new institution was hampered by the debt involved in this transfer, but before Dr. Rorie's resignation in 1903 the gradual realization of the value of the town site which it had left, relieved the *res angusta*, and when the building was sold to the Dundee District Lunacy Board he had the satisfaction of knowing that it was a flourishing institution. After his retirement he was appointed Consulting Physician, and viewed with approval the measure by which, through the co-operation of the Royal Asylum and the Royal Infirmary Boards, the system of treating incipient cases of mental disease in the general hospital was established.

Dr. Rorie took his part in the general work of the professional societies, and had been President both of the Forfarshire Medical Association and of the Dundee Branch of the British Medical Association.

JOHN HENRY FARBSTEIN, M.B., B.S., F.R.C.S.,

RESIDENT MEDICAL OFFICER, HULL WORKHOUSE.

We regret to have to record the death at the early age of 26 of Mr. John Henry Farbstein, Resident Medical Officer of the Hull Workhouse.

Mr. Farbstein, who was the son of Dr. Henry Farbstein, of Hull, had a very distinguished career at University College, London, graduating M.B., B.S. (with honours in Surgery) in 1907, a few months after having taken the diplomas of M.R.C.S. and L.R.C.P.Lond. During his

career at University College he obtained several distinctions, including the Liston Gold Medal for Surgery, the Gold Medal for Midwifery, and a medal for Clinical Medicine.

Immediately after qualifying he was appointed House-Physician, and then followed as House-Surgeon at his old hospital. Subsequently he became Assistant Demonstrator of Anatomy at University College, and was at the same time appointed Clinical Assistant in the Ear and Throat Department; on the termination of these appointments he was Clinical Assistant at the Great Ormond Street Hospital for Children.

In 1910 he was admitted a Fellow of the Royal College of Surgeons of England, having passed the examination some months before the age for qualification. About eighteen months ago he was appointed Resident Medical Officer to the Hull Workhouse.

Up to December 17th he was apparently in good health; he was taken ill on that date and died on March 24th. The deepest regret and grief will be felt by all who knew him at the untimely death of so talented a member of the profession. He was a man of the greatest strength of character. He was keen and energetic, and took a sincere and profound interest in his work. His manner was genial, he was considerate to a degree, and he made a true and genuine friend. His sterling qualities earned him the respect of and endeared him to all with whom he came in contact.

DR. JAMES KEITH ANDERSON died on March 29th at Arbroath, where he was born sixty-four years ago. Dr. Anderson studied at Edinburgh University, where he graduated M.D. He spent most of his professional life in his native town, where he was Medical Officer of Health and Police Surgeon, and also in private practice. He was a kindly, genial man and a friend of the poor, and his death will be regretted by the community.

DEATHS IN THE PROFESSION ABROAD.—Among the members of the medical profession in foreign countries who have recently died are Dr. O. Drasch, Professor of Histology and Embryology in the Medical Faculty of Graz; Dr. L. Russ, Professor of Clinical Medicine in the Medical Faculty of Jassy; Dr. William W. Mayo, the father of the two well-known American surgeons of that name, himself a native of England, in his 92nd year; Dr. Ferdinand Lohmeyer, sometime Extraordinary Professor of Surgery in the University of Goettingen, and author of a textbook of general surgery, and of monographs on various surgical subjects, aged 85; Dr. William Warren Porter, editor of the *Buffalo Medical Journal* since 1888, in his 73rd year; Dr. Arloing, Professor of Experimental and Comparative Medicine in the University of Lyons; Professor V. Cozzolino, Professor of Otology at Naples, in his 58th year; and Dr. Henry Pickering Bowditch, sometime professor at Harvard, aged 71.

Medical News.

IT is announced that a school of tropical medicine is about to be established in association with the New York Post-Graduate Medical School and Hospital.

UNDER the will of the late Miss Ellen Taunton Little of Bath, the United Hospital, the Mineral Water Hospital, and the Eastern Dispensary, all in Bath, each receive a sum of £300.

THE late Mr. William Young of Salisbury, whose will has now been proved, bequeathed £1,500 to the Brompton Cancer Hospital, £500 to St. Bartholomew's Hospital, and £250 each to the Southampton Free Eye Hospital and the Royal Hospital for Incurables.

AT the meeting of the Royal Sanitary Institute at the Town Hall, Colchester, on Friday, April 21st, at 7.30 p.m., a discussion on the control of pulmonary tuberculosis will be opened by Dr. W. F. Corfield, M.O H., Colchester. On the afternoon of the following day a visit will will be paid to the waterworks.

A COURSE of six lectures on "Conduct and Its Disorders, an Introduction to the Study of Life," will be delivered by Dr. Charles Mercier at University College, London, at 5 p.m., on Fridays, beginning on May 12th. The lectures are open without fee, but persons desiring to attend them should apply for a card of admission stating their qualifications to Mr. Walter W. Seton, Secretary, University College, London, W.C.

IN the wide field covered by the British contribution to the International Exhibition at Turin applied chemistry and bacteriology are well represented. The arrangements include two completely equipped laboratories in real action and illustrations of the experimental work in agricultural bacteriology done in various parts of Great Britain.

A MEETING of the Glamorgan Branch of the British Red Cross Society will be held at the City Hall, Cardiff, on Tuesday next, when the Countess of Plymouth will preside. The uniform for Voluntary Aid Detachments and a special stretcher will be exhibited, and also a stretcher used by the Swiss Red Cross Society, procured for the purpose by the Honorary Secretary, Mr. J. Lynn Thomas, C.B.

THE spring meeting of the South-Eastern Division of the Medico-Psychological Association will be held at the Bethlem Royal Hospital, S.E., on Tuesday, April 25th. The Rev. E. G. O'Donoghue, chaplain to the hospital, will give a lantern lecture on the story of Bedlam (1247–1911), and papers will be read by Dr. H. J. Norman on witchcraft and demoniacal possession in their relation to insanity, and Dr. J. Francis Dixon on *post-mortem* appearances in some instances of sudden death.

THE eleventh tour of the organization called Voyage d'Etudes Médicales (V.E.M.) will start from Lyons on August 28th next, and will reach Toulouse on September 11th, after visiting the chief health resorts in the south-east of France. The charge from Lyons to Toulouse, including railway, carriages, and board and lodging, is 350 francs. For particulars as to the reductions allowed by the railway companies for the journey to Lyons and from Toulouse application should be made to Dr. Carron de la Carrière, 2, Rue Lincoln, Paris.

AN evening concert in aid of the British Medical Benevolent Fund Guild will be given on Saturday, April 29th, at the Bechstein Hall, London, at 8.15 p.m. The concert is under the patronage of Princess Christian of Schleswig-Holstein, the Duke and Duchess of Teck, and many other distinguished persons. Mrs. Kendal will give a recitation. Among the artistes who have promised to sing are Madame Donalda, Miss Aimée Parkerson, Mr. Lawrence Kellie, and Mr. E. Gordon Cleather. Tickets for reserved seats—price £1 1s., 10s. 6d., and 7s. 6d.—can be obtained at the Hall or at the usual ticket agencies.

THE accounts submitted at the thirty-seventh annual meeting of the Metropolitan Hospital Sunday Fund on April 8th showed that the collection for the year—namely, £34,604—exceeded that of the previous year by some £4,000. It was suggested, however, by Sir Savile Crossley, the chairman of the fund, that the contribution of the working classes towards the upkeep of hospitals and kindred institutions during the year should be regarded as having been some £10,000 higher, for the part payments made for benefits awarded by the various committees of the fund amounted to about that sum.

THE African Entomological Research Committee, established in June, 1909, by Lord Crewe, then Secretary of State for the Colonies, with the object of promoting the study of the insects which play so prominent a part in the spread of disease among men, animals, and plants in Africa, has received a promise from Mr. Andrew Carnegie to place at its disposal a sum of £1,000 a year for three years to defray the cost of sending specially selected Carnegie scholars to the United States to study the practical applications of entomology—a subject which has received much attention in that country. Two of the scholars are already at work in the United States, and Dr. L. O. Howard, chief of the Bureau of Entomology at Washington, is personally interesting himself in the matter. It is confidently expected that the scheme will be of great value to British administration in Africa and elsewhere by providing a body of well-trained entomologists available for employment in the services of the different colonial governments. The chairman of the committee is Lord Cromer, and the secretary Mr. Guy Marshall, from whom at the British Museum (Natural History), South Kensington, further particulars can be obtained. The African colonies and protectorates have already sent large quantities of material to the Museum. The collection of insects, after being identified and recorded, are dispatched to the schools of tropical medicine, universities, and museums throughout the country. Two skilled entomologists are now employed under the direction of the committee in East and West Africa respectively for the purpose of carrying out special investigations and of interesting and instructing local officials in the work.

Letters, Notes, and Answers.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

LAVATORIES FOR WOMEN.

A CORRESPONDENT writes stating that about a year ago he received a circular letter asking him to take part in a movement to secure the abolition of a charge for the use of urinals in lavatories for women, and that since then he has heard nothing more about it. We have made inquiries of certain people who at one time were actively interested in this question, but have been unable to ascertain whence the circular in question emanated or what is now being done in the matter. Should any reader possess any information it would be welcome.

ANSWERS.

WRITER'S CRAMP.

DR. FREDK. F. MIDDLEWEEK (London) writes: In reply to "Q.," I should like to point out that writer's cramp, whether it be of the tremulous variety, with pronation and supination tremors, or of the spastic kind with tonic spasms of the thenar muscles, and flexion or extension cramp of the flexor and extensor carpi radialis respectively, would be greatly relieved by properly applied massage and passive movements. Tenderness and infiltration of the shoulder and neck muscles should also be looked for.

TREATMENT OF PAINFUL FEET.

DR. H. J. THORP (Ipswich) writes to recommend "D," to try the following:

℞.	Sodii salicyl.	gr. xv
	Lithii salicyl.	gr. v
	Potass. cit.	gr. xx
	Tinct. zingib.	♏ xx
	Aq. cinnam.	℥j
	T. d. s. in water.	
℞.	Ex. colch. acet.	gr. j
	Podoph. res.	gr. ½
	Pil. colc. hyoscy.	gr. iv
	Ft. pil. One at night.	

LETTERS, NOTES, ETC.

RESEARCH DEFENCE SOCIETY.

WE are asked to make the following corrections in the address entitled "Antivivisectionists and the Research Defence Society," delivered at the recent annual meeting of the Dublin Branch of the Society, and published in the BRITISH MEDICAL JOURNAL of April 8th, p. 797 et seq. On p. 797, line 39 from the beginning of the address, "of a sparrow, etc.," should read "*to* a sparrow." On p. 798, left hand column, line 17 from top, for "a hundred animals," read "*even hundreds of animals.*" On the same page, right hand column, line 8 from bottom, after "Mr. Herbert Gladstone," read "now Lord Gladstone." On p. 799, right hand column, line 14 from top, for "The *Act* orders," read "The *Home Secretary* orders."

A CASE OF METASTATIC GONORRHOEAL CONJUNCTIVITIS.

DR. ANDREW S. M. NEIL (Liverpool) writes: In a memorandum with the above heading in the JOURNAL of March 25th, 1911, by an American writer, there occur the words "half billion doses." In view of the fact that the hypodermic administration of bacterial vaccines is being increasingly made use of in the treatment of various diseases, and as dosage of these vaccines is quite in its infancy, it behoves all users of these vaccines who may wish to publish their results to be strictly accurate in numeration. The word "billion" in such a connexion would be probably best left alone. A billion is a million millions, which is an almost unthinkable number, but I believe in America and some other countries a billion is reckoned as a thousand millions.

THE POSSIBILITY OF OBTAINING A VACCINE FOR YELLOW FEVER.

DR. HENRY ALSTON (Trinidad) writes: It was demonstrated by experiments in Cuba and elsewhere that the blood of yellow fever patients during the first three or four days was infective even if the blood was filtered through a Berkefeld filter, and the filtered serum injected into healthy persons. This fact has cause me to theorize that if a blister were applied early to a yellow fever case and allowed to "rise," the serum in the bulla would be crowded with millions of the ultra-microscopic germs. If this serum were heated to 60° C. to kill the germs and injected into the patient, it is possible that it would act as a vaccine. Professor Ehrlich holds that spirochaetes killed in the fluids of the body by salvarsan act as a vaccine. A similar experiment could be tried on animals in diseases communicable by filtered blood, such as rinderpest and foot-and-mouth disease. The diseased animals could be bled to get the serum. It is not within my power to try these experiments, but I throw out the suggestions.

THE CAUSE OF APPENDICITIS.

DR. D. J. DRAKE (Pahiatua, New Zealand) writes: With reference to the letters of Dr. Rainsbury and of Dr. Paira-Mall in the JOURNAL of December 3rd, 1910, p. 1824, and December 24th, 1910, p. 2003, I should like to record that during ten years of practice in Assam, when I was in medical charge of fully 25 000 souls, and where a daily sick list was anything between 5 to 10 per cent., I never was called upon to treat a single case of appendicitis in a native, though I have had cases in Europeans. The coolies came from many parts of India, and were almost vegetarians. Cancer in all its forms was exceedingly rare.

"KISSING THE SHUTTLE."

OUR attention has been drawn by Messrs. Whipp and Co., of Manchester Road, Preston, to a shuttle devised by them with a view to abolishing among weavers the insanitary and sometimes dangerous manœuvre known as "kissing the shuttle"—that is, threading shuttles by sucking the weft through the eyehole. In the new shuttle, which in all other respects is identical with that ordinarily used in manufactories, the threading process is reversed, the thread being blown instead of sucked through the eyehole. Threading in this way requires no application of the lips to the shuttle, and is both easier and quicker than the old method. Should the weavers use the shuttle as it is intended to be used, all risk of infection would be obviated. Since, however, some of them would possibly continue to apply their lips to the shuttle in blowing just as in sucking, the firm supplies a small wooden tube to pass into the eyehole, intending that each worker shall keep his own tube. This latter device is an important addition, and completes an excellent idea.

DROSERA (SUNDEW).

DR. PERCY NEWELL (Cliftonville, Margate) writes: There are, I fancy, a good number of practitioners who use this plant in Great Britain. Personally, I can say I have used it for fifteen years or more in all my cases of pertussis during the spasmodic stage, and from my experience of it I consider it to be as nearly a specific as possible in this disease. If given in 5-minim doses of a 10 per cent. tincture, the remark that it has "probably no medicinal value in these conditions" may be justified. To get satisfactory clinical and therapeutical results it must be prescribed in much smaller doses.

OSTEO-ARTHRITIS AND ITS RELATION TO CHRONIC RHEUMATISM.

DR. G. L. KERR PRINGLE (Harrogate) writes with regard to Dr. Buckley's letter in the JOURNAL of March 25th: I think he is rather premature in wishing to get rid of the term osteo-arthritis, which we must retain until we are able to select a name which will more aptly suit the condition. My contention is that there is a definite form of arthritis characterized by "bony proliferations" which is apart from all other forms of arthritis. Moreover, this special form of arthritis is probably a local manifestation of a general affection, which at present we are unable to recognize. It may occur after trauma in youth, or immediately subsequent to trauma in late life, infective, rheumatoid, and gouty arthritis, or it may occur *de novo*, as, for example, in the knee joint of women at or about the climacteric. That these knee-joint changes are produced by "wear and tear" appears to be improbable, considering the frequency with which this condition is found among women of the upper classes leading indolent lives, and one would expect if "wear and tear" were the cause to find the condition common among miners, cyclists, etc. The same remarks apply to those cases in which Heberden's nodes are the chief manifestation. It is much more probable that these nodes, owing to their position at the terminal phalangeal joints, have some causal connexion with disturbance of nutrition, than with an excessive "wear and tear." One other point. Dr. Buckley, in referring to the relationship of gout and osteo-arthritis, makes the statement that the use of the *x* rays have "*revealed* the existence of uratic deposits." Now urates are not opaque to the *x* rays, and, as Strangeway and Burt have shown, this is one of the reasons why it is almost impossible to distinguish between skiagrams of rheumatoid and gouty arthritis where there are bony additions—namely, in those cases where I believe osteo-arthritis has followed on gouty or rheumatoid arthritis.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Eight lines and under	0	4	0
Each additional line	0	0	6
A whole column	2	13	4
A page	8	0	0

An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *postes Restante* letters addressed either in initials or numbers.